Planning and Research

April 1977

Study 3:

An Analysis of Injuries Which Occurred in Physical Education, Intramural Activities, Extramural Activities and Free Play in a Selected Sample of Schools in the Province of Alberta During the 1975-76 School Year.

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A Report Submitted to:
The Department of Education
The Government of Alberta

Alberta
EDUCATION

Prepared by:
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ACKNOWLEDGEMENTS

This study was planned as a result of expressed concerns by parents and others as to the nature of the required program of physical education and the degree of its acceptance by students and parents, the costs of the program and the incidence of injuries sustained by students. The actual research placed a heavy demand on a number of people and groups throughout the province whom we would like to recognize. The formulation and direction of the study was significantly shaped by a Steering Committee comprised of

Dr. W.R. Duke, Chairman
Dr. W.P. Eddy
Dr. E.A. Torgunrud
Mr. K. McKenna
Mr. C.M. Ward

This committee provided invaluable guidance to the research team but is in no way responsible for the content of the report itself.

Although it is impossible to specifically credit all of the individuals who helped with the study, the following people were of critical importance in many ways:

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Without the full cooperation of the superintendents, principals and physical education teachers who participated, this study could not have been properly undertaken and the results might not have reached the high levels of reliability and validity obtained. Their outstanding helpfulness re-affirms our belief in the high quality of people who operate our schools and who are responsible for the education of our children.

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R.G. Glassford
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I INTRODUCTION

The major purpose of this phase of the investigation was to collect, compile, analyze, and interpret data on the number and nature of injuries occurring in physical education classes and athletic activities in grades K-12 within Alberta schools. Subsidiary purposes were to develop a viable injury reporting form, a concise instructional pamphlet to accompany the injury reporting form, and a computer program for the analysis of the data obtained.

The Alberta School Accident Report Form utilized in this study, for recording injuries, was developed after a comprehensive review of existing forms and after consultation with district supervisors of physical education, principals, physical education department heads, and teachers of physical education. A copy of this form can be found in Appendix A.

The instructional pamphlet briefly outlines the purpose of the project, the recording advantages gained by the use of the accident form and a brief description of what is a reportable injury. A copy of this form can be found in Appendix B.

The computer program was a statistical package for the social sciences which provided data card punching, overall compilations, two section comparisons and three section comparisons.

Approval to contact the schools selected for the study was obtained from the Superintendents of those districts with schools represented in the study. In addition, the Superintendents were asked to contact the principals of the schools involved indicating their approval of the study. Finally, a letter asking for cooperation in providing assistance with the study was sent by the Director of Curriculum for the Department of Education to all schools selected to participate in the study.

The instructional pamphlet and accident report form were distributed to 126 randomly selected schools in rural and urban Alberta. This sample represented approximately ten per cent of the total provincial school population and consisted of 65 schools grades Kindergarten-6, ten schools grades 7-9, seven schools grades 10-12, 25 schools grades K-9, seven schools grades 7-12, and 12 schools grades K-12.

The study spanned a twelve month period from May 15, 1975 to May 14, 1976. Any recordable injury which occurred during this twelve month period in physical education instruction, intramural activity, interscholastic activity, recess, or free activity before school, after school, or at noon hour was to be recorded on the Alberta School Accident Report Form with a copy being forwarded to the investigators of the study.

II. REPORTABLE INJURIES

For the purposes of this study and report, a reportable injury was considered to be:

1. any injury receiving medical or first aid attention and which resulted in the student missing any school classes or practice sessions.
2. any dental injury which should receive professional attention.
3. any injury which lead to a cessation of an athlete's customary participation in a sports event or in participation in activity the day following the injury.

III. LIMITATIONS OF THE STUDY

The study was limited by the following factors:

1. Only those students with reported injuries as considered in the description of a "reportable injury" were surveyed. It

should be recognized that injuries sustained by students, particularly of a minor nature may not have been reported.

2. The data obtained from the accident report forms was dependent upon the accuracy of reporting by teachers, school coaches, supervisory personnel or principals.
3. Information obtained from the data collected was limited by the nature and scope of the accident report form. However, provision for additional information other than what was specified was provided in many sections of the report form.

IV RESULTS FOR KINDERGARTEN TO THE SIXTH GRADE

The results of the incidence and nature of injuries occurring to participants in physical education classes, intramural and extramural activities for the kindergarten to sixth grades are reported in histogram form. The histogram figures are followed by a summary and recommendation section.

Figure 1

Injury Frequency as Related to Sex for Grades K-6

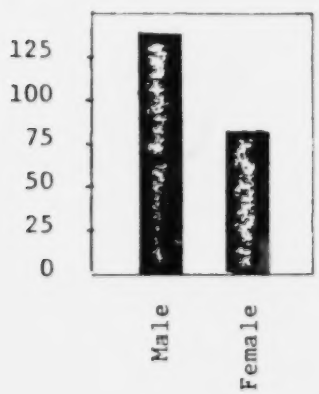


Figure 1. Males incurred 26% more injuries at the K to 6 grade level, than did females. The ratio of the number males to females for these grades is approximately the same.

Figure 2

Injury Frequency as Related to Age for Grades K-6

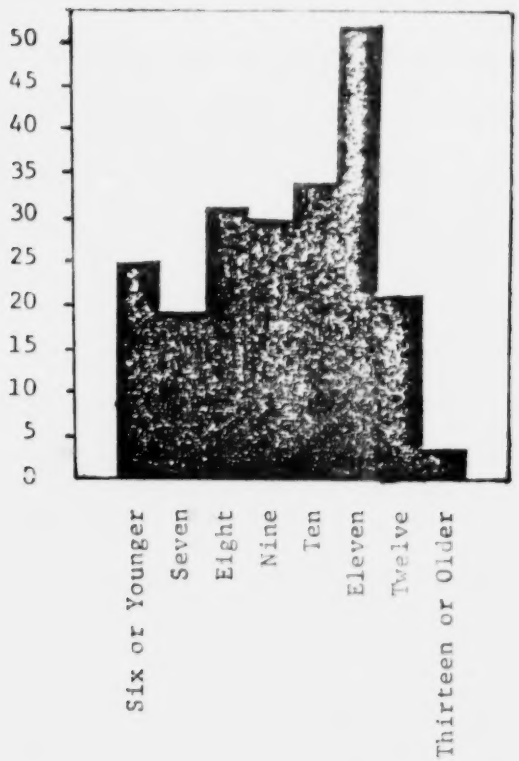


Figure 2. The highest incidence of injury for the K to 6 grades occurred at age eleven.

Figure 3

Injury Frequency During Organized Activity at Noon, or Recess as Related to Age for Grades K-6

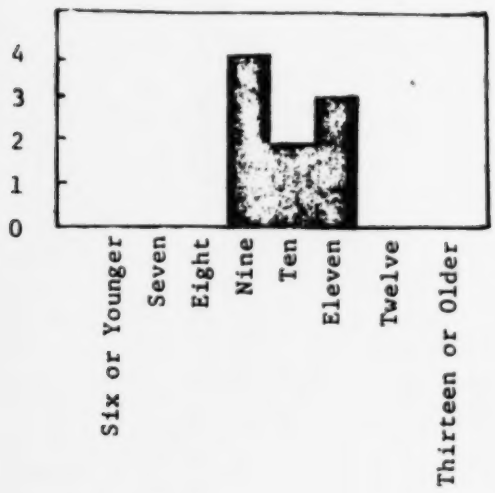


Figure 3. Only nine students were injured during organized activity at noon or recess for the K to 6 grades. All injuries were confined to the nine, ten, and eleven age categories. In all probability no program of organized activity at noon or recess is provided for the six or younger, seven or eight age categories.

Figure 4

Injury Frequency as Related to Grade for Grades K-6

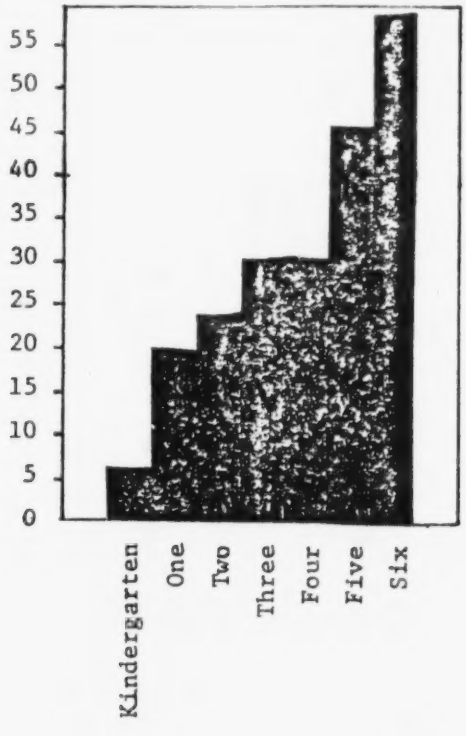


Figure 4. The frequency of injury for grades K to 6 was observed to roughly increase as students progressed from kindergarten to grade six.

Figure 5

Injury Frequency During Organized Instruction as Related to Grade for Grades K-6

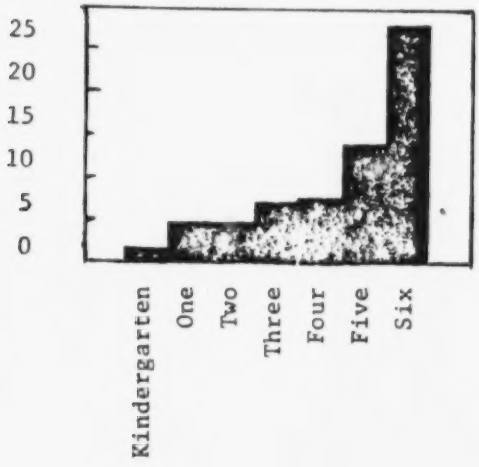


Figure 5 . Increase in the frequency of injury during organized instruction for Grades K to 6 tended to approximately parallel the advancement of students from kindergarten to grade 6.

Figure 6

Injury Frequency During Free Play at Recess, Noon, Before School and After School as Related to Grade for Grades K-6

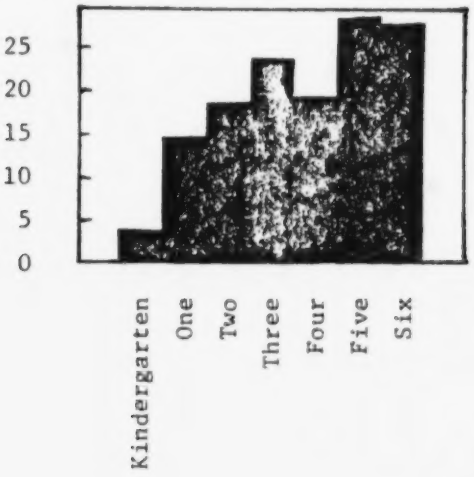


Figure 6 . The increase in the frequency of injury during free play at recess, noon, before and after school for grades K to 6 tended to roughly coincide with advancement from kindergarten to grade six.

Figure 7

Injury Frequency as Related to the Time of Day in Grades K-6

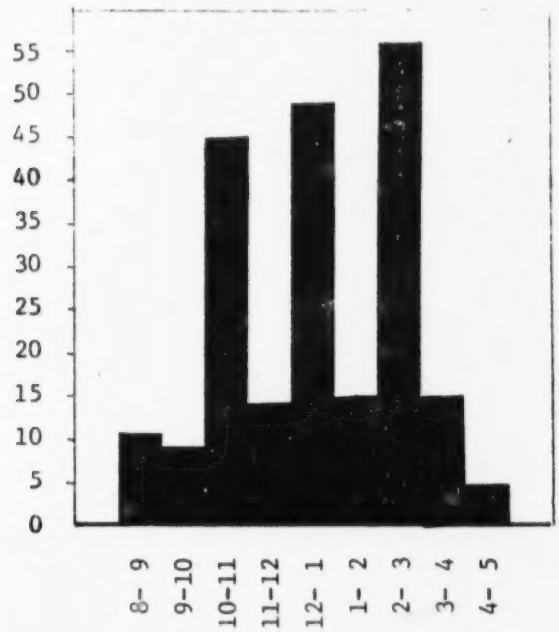


Figure 7. The largest proportion of injuries for the K to 6 grades occurred during three time categories. These categories coincide with the recess periods, in the morning, noon and afternoon.

Figure 8

Injury Frequency as Related to the Body Region Injured for Grades K-6

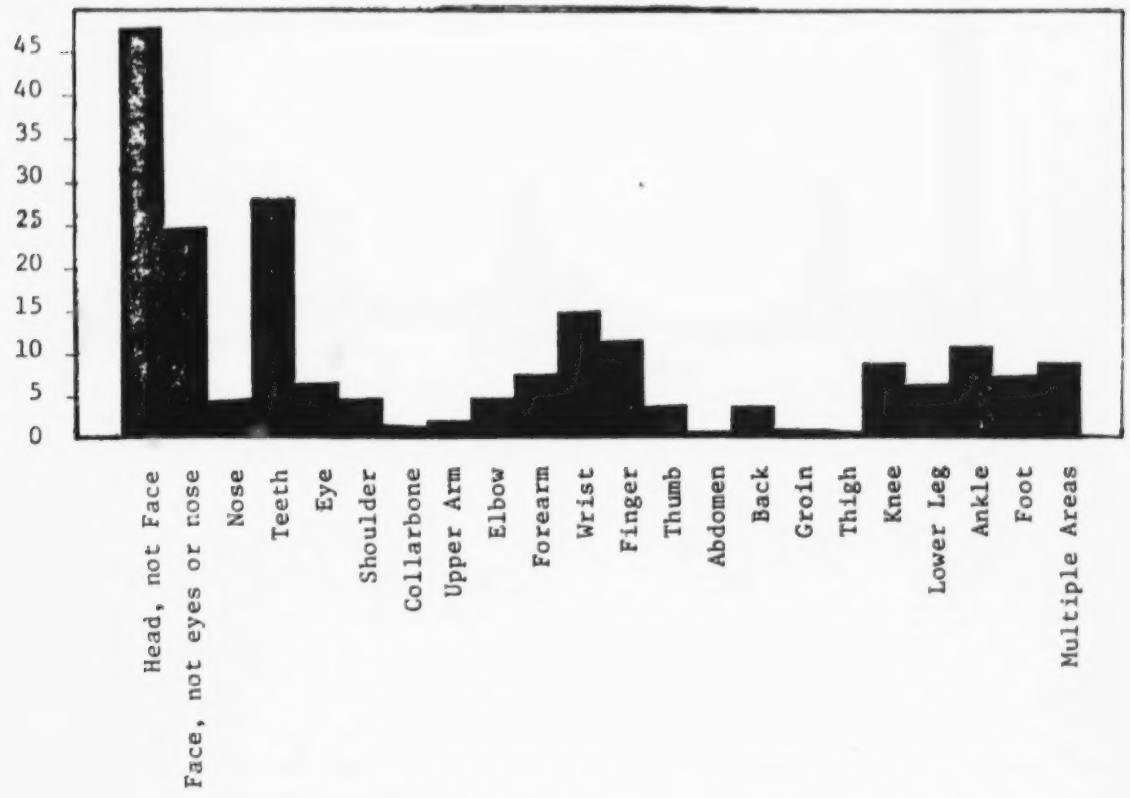


Figure 8 . The most frequently injured body areas grouped collectively were the head, face and teeth. This collective group accounted for 46 percent of injuries for the K to 6 grades. Ranked second and accounting for 20 percent of the total, when taken collectively as one area, were injuries to the elbow, wrist, finger and thumb. Also relatively common were injuries to the knee, lower leg, ankle and foot (16 percent when considered as one area).

Figure 9

Injury Frequency During Organized Instruction as Related to the Body Region Injured in Grades K-6

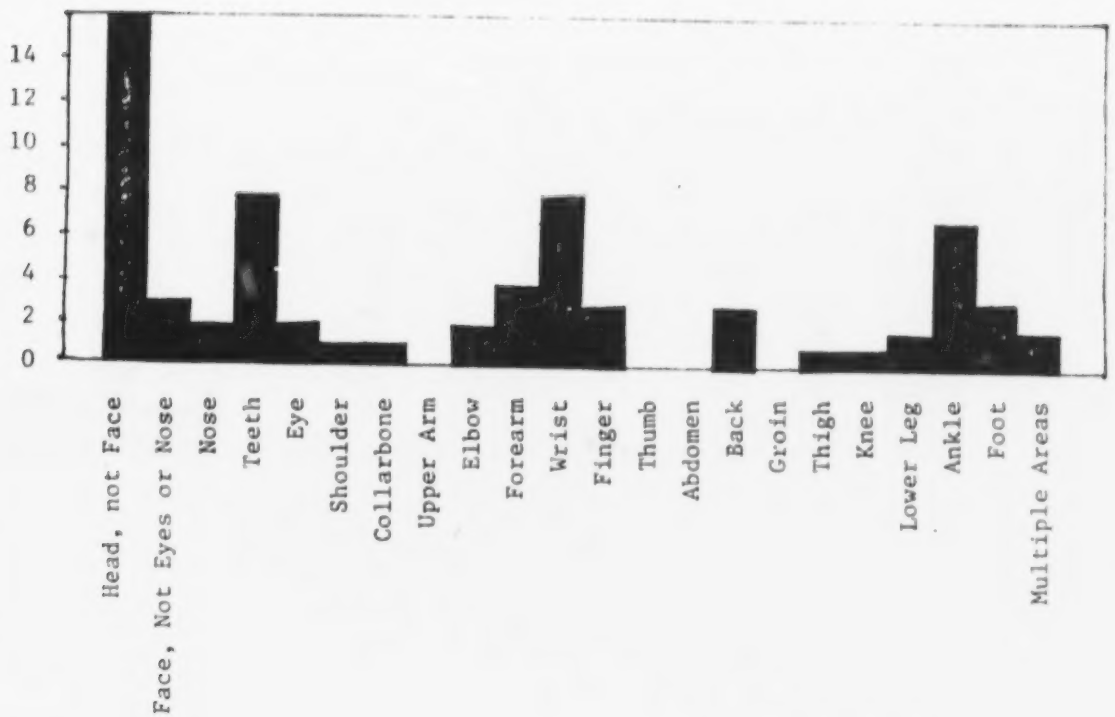


Figure 9. Injuries to the head constitued the most frequently injured body region during organized instruction for the K to 6 grades. Injuries to the teeth, wrist and ankle were the next most frequently affected areas.

Figure 10

Injury Frequency During Free Play at Recess, Noon Hour, Before School and After School as Related to the Body Region Injured in Grades K-6

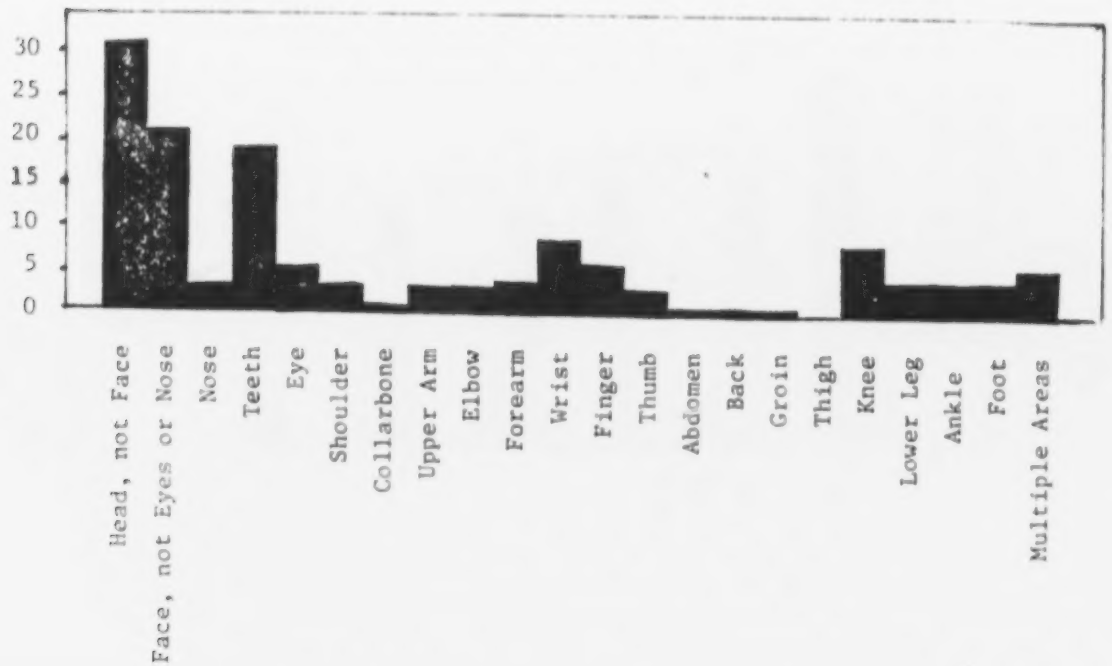


Figure 10 Head, facial and injuries to the teeth predominated in grades K-6. These injuries accounted for 51 percent of the total. The knee, wrist and fingers were the next most frequently injured body areas accounting for 16 percent of the total.

Figure 11

Injury Frequency as Related to the Type of Injury for Grades K-6

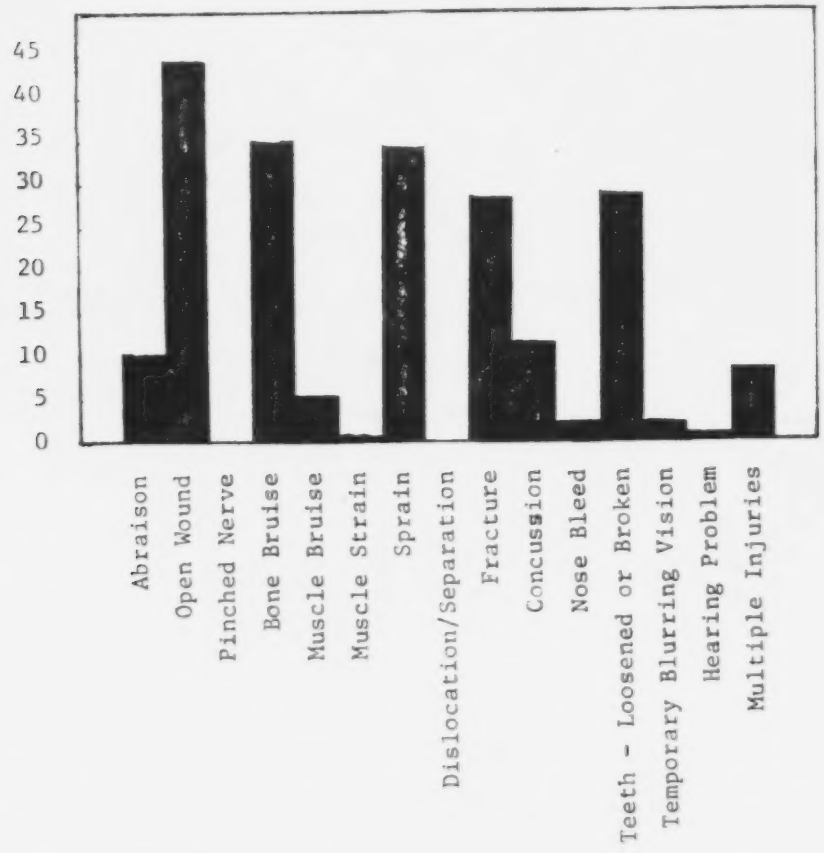


Figure 11. Open wounds, bone bruises, sprains, fractures and loosened or broken teeth were the predominant types of injuries reported in the K to 6 grade levels, accounting for approximately 80 per cent of all injuries.

Figure 12

Injury Frequency of the Type of Injury as Related to Selected Body Regions Injured in Grades K-6

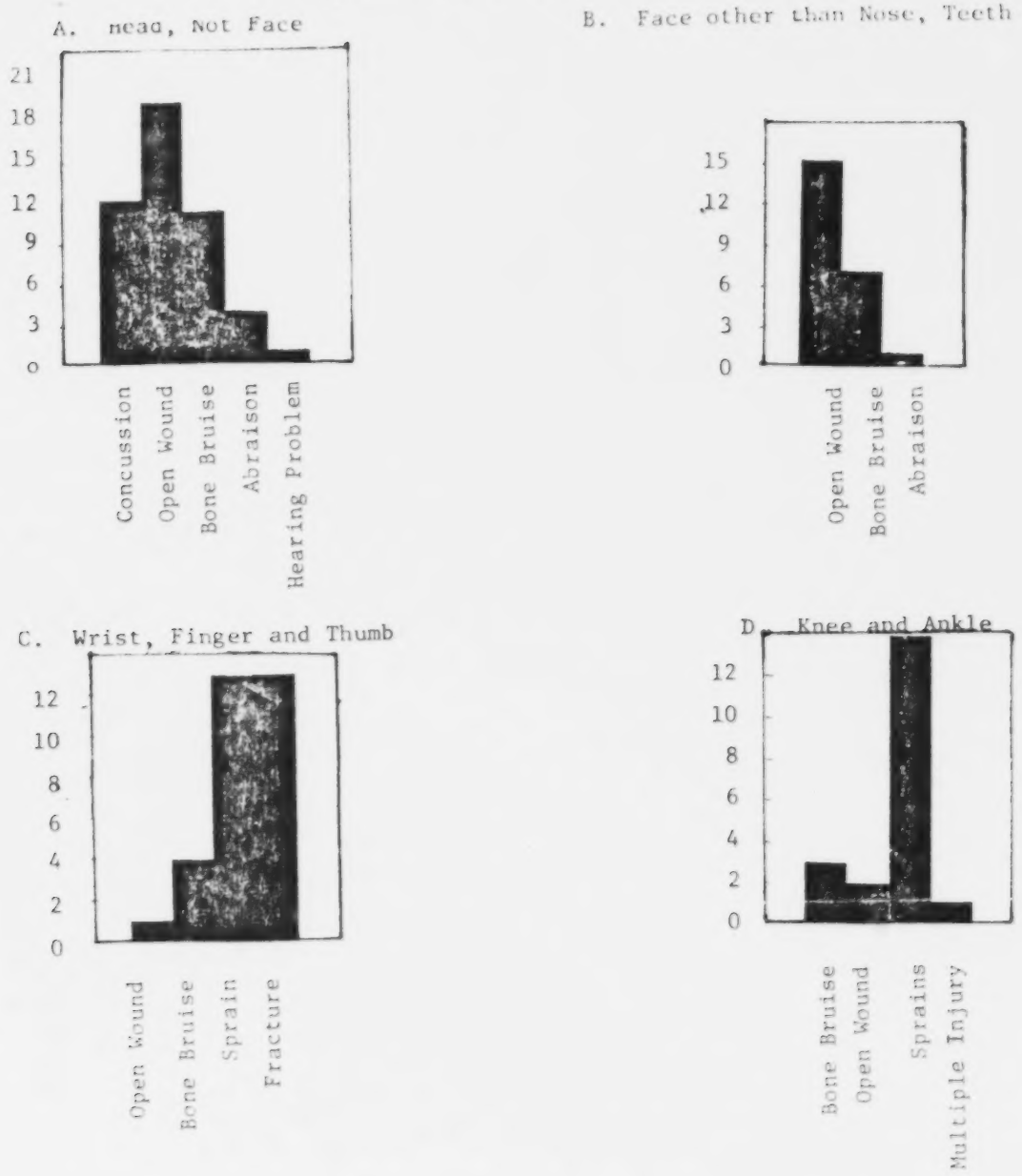


Figure 12. A. The most commonly occurring injury to the head was the open wound (40 percent). The next most frequent injuries to the head were concussions (25 percent) and bone bruises (23 percent).

B. The predominant injury reported for the facial area was the open wound (69 percent).

C. Sprains (42 percent) and fractures (39 percent) were the most frequently occurring injuries for the wrist, finger and thumb areas.

D. The major reported injury for the knee and ankle were sprains (70 percent).

Figure 13

Injury Frequency During Physical Education Instruction as Related to the Type of Injury in Grades K-6

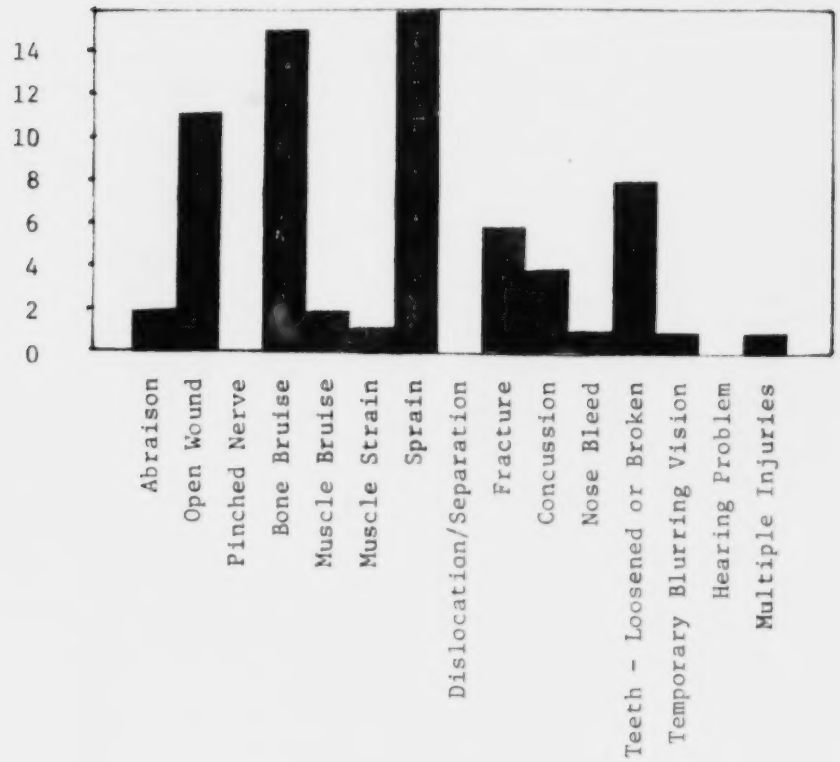


Figure 13 Sprains, bone bruises, open wounds and injuries to the teeth accounted for 75 percent of all injuries during physical education insturction for the K to 6 grades.

Figure 14

Injury Frequency During Organized Instruction
as Related to the Type of Injury for Grades K-6

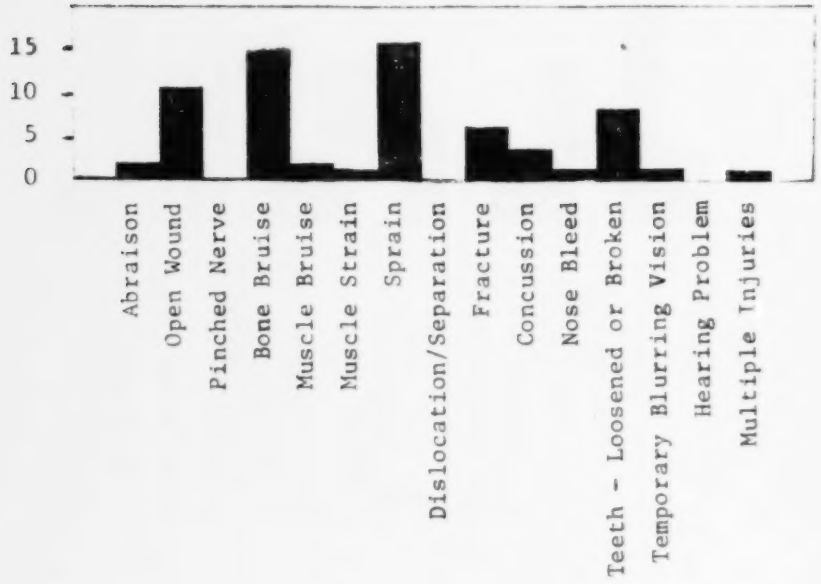


Figure 14. Open wounds, bone bruises, sprains, fractures and loosened or broken teeth accounted for 82 percent of all injuries during organized instruction.

Figure 15

Injury Frequency During Free Play at Recess, Noon, Before or After School as Related to the Type of Injury for Grades K-6

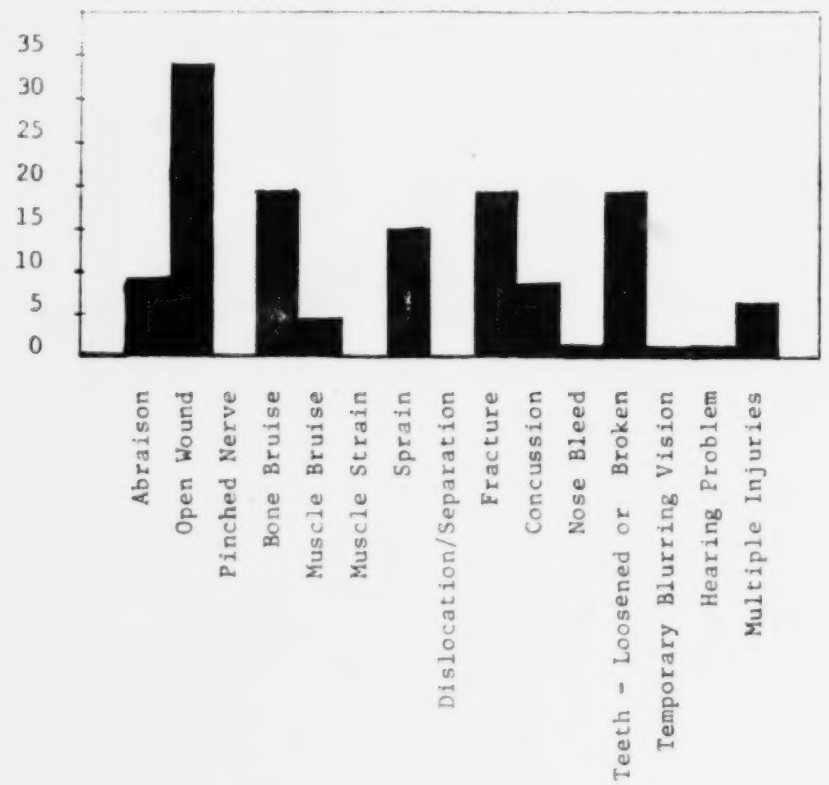


Figure 15. Open wounds, bone bruises, sprains,fractures and teeth loosened or broken accounted for 78 percent of all injuries during free play at recess, noon and before and after school.

Figure 16

Injury Frequency as Related to the Facility Area for Grades K-6

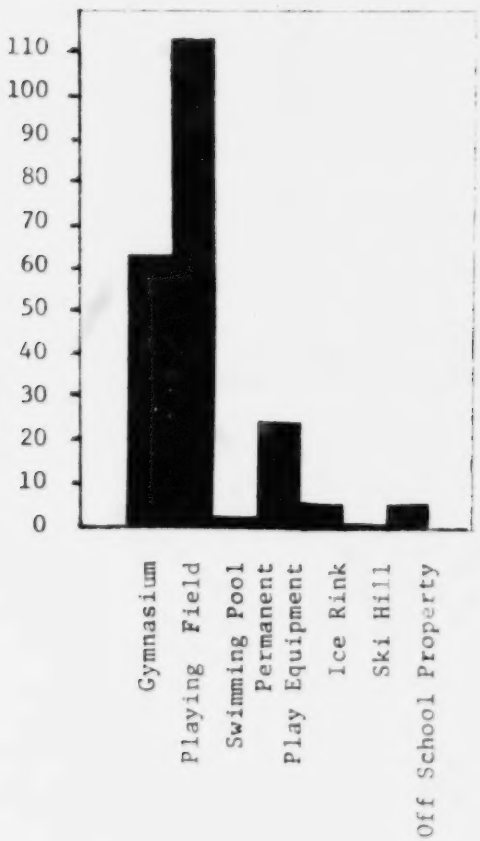


Figure 16. The largest number of injuries for the K to 6 grades, 53 percent, occurred on playing fields or tarmac. Injuries in the gymnasium, which accounted for 30 percent of the total, ranked second.

Figure 17

Injury Frequency During Organized Instruction as Related to Facility Area for Grades K-6

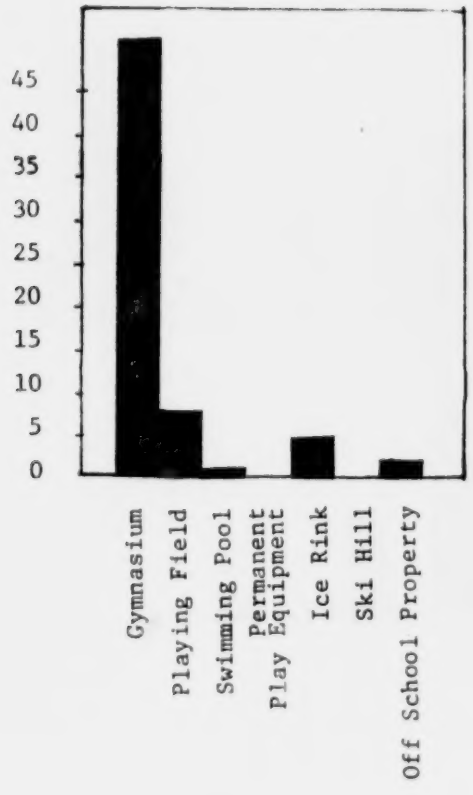


Figure 17. The majority of injuries during organized instruction for the K to 6 grades occurred in the gymnasium.

Figure 18

Injury Frequency During Free Play at Recess,Noon Hour, Before School and after School as Related to Facility Area for Grades K-6

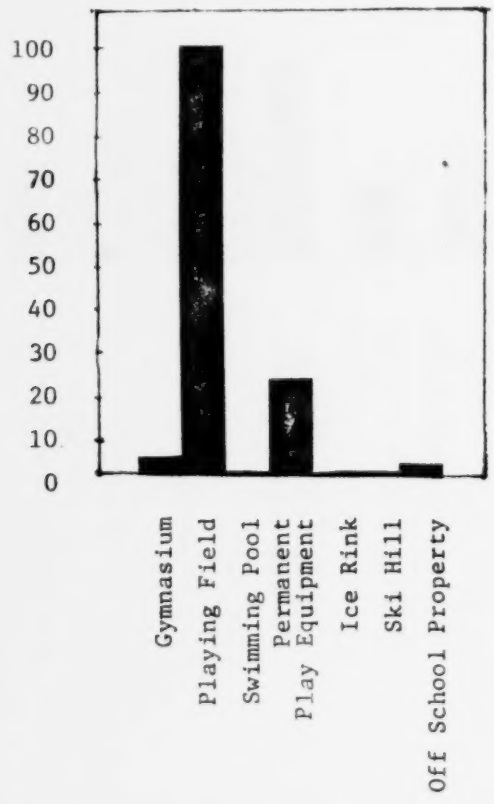


Figure 18. The majority of injuries during free play at recess, noon hour, and before and after school for the K to 6 grades occurred on the playing field and on permanent play equipment.

Figure 19

Injury Frequency as Related to Probable Direct Cause for Grades K-6

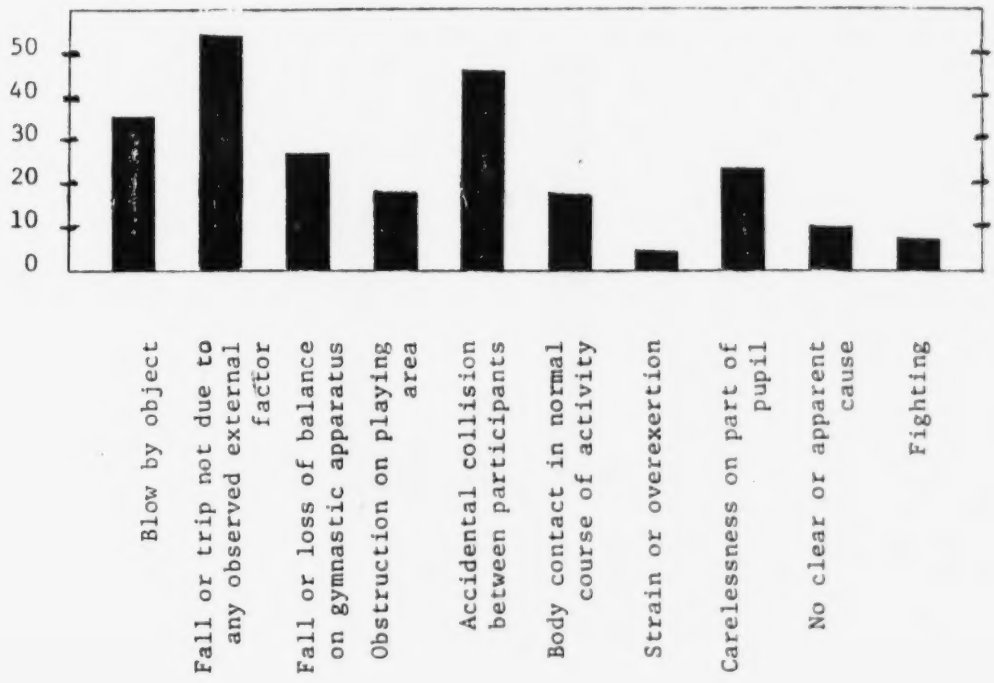


Figure 19 A fall or trip not due to any observed exterial cause was a primary cause of injury at the K to 6 grade levels. The second most frequent cause of injury reported was accidental collisions between participants. Also contributing heavily to the incidence of injury were the result of a blow delivered by an object, a fall or loss of balance on gymnastic apparatus, and injuries occurring through carelessness on the part of the pupil.

Figure 20

Injury Frequency During Organized Instruction as related to Probable Direct Cause for Grades K-6

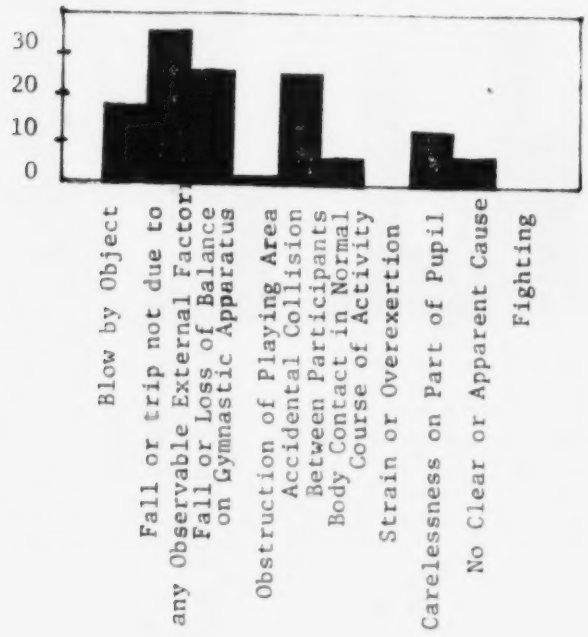


Figure 20. For grades K to 6 during organized instruction the probable direct causes of injury. in order of frequency, were accidental falls or trips, falls or loss of balance on gymnastic apparatus and accidental collision between participants. These causes of injury accounted for 65 percent of the total number of injuries during organized instruction.

Figure 21

Injury Frequency During Free Play at Noon, Recess, Before or After School as Related to Probable Direct Cause for Grades K-6

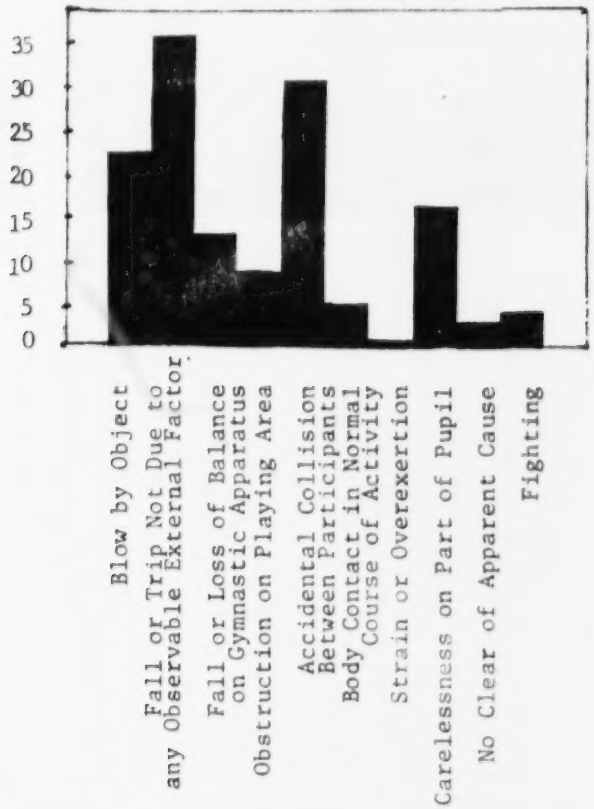


Figure 21. Accidental falls or trips, accidental collision between participants, blows by objects and carelessness on the part of the student accounted for 75 percent of all injuries during free play at noon, recess, and before or after school.

Figure 22

Injury Frequency as Related to Program Phase for Grades K-6

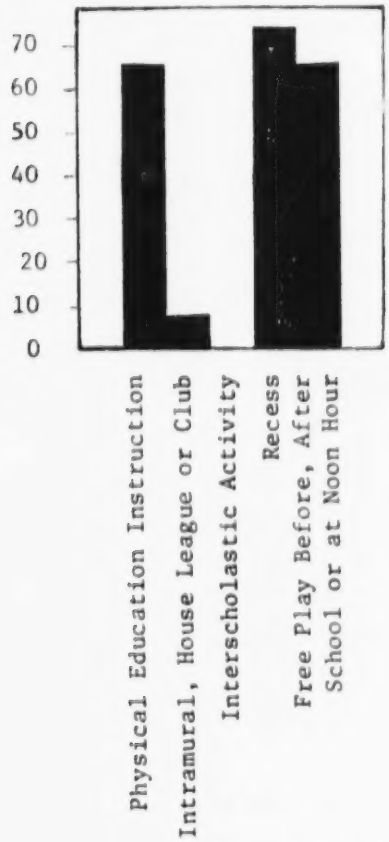


Figure 22. In the program phase the largest proportion of injuries occurred in Physical Education Instruction, at recess, and in free play, before or after school or at noon hour. The incidence of injury for these three program phases were approximately equal and when combined accounted for 96 percent of all injuries for the K to 6 grades.

Figure 23

Injury Frequency as Related to the Type of Activity for Grades K-6

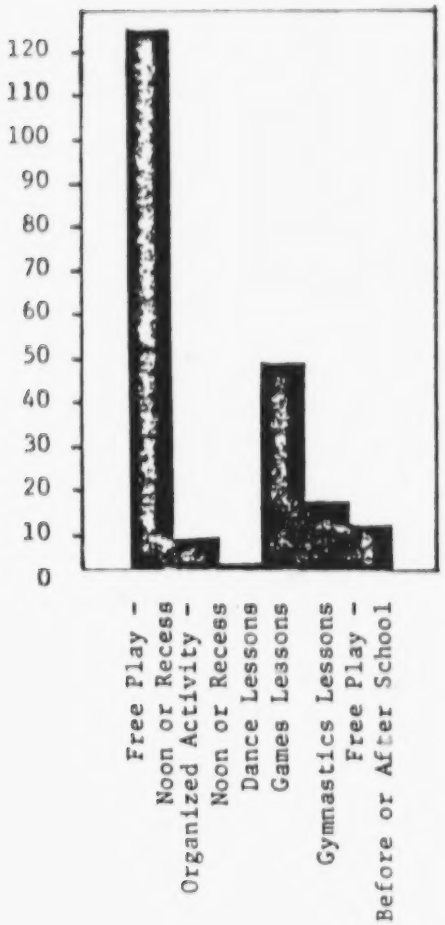


Figure 23. A large proportion of injuries, 60 percent, occurred in free play at noon or recess for the K to 6 grades. In contrast, a small proportion of injuries, 4 percent, occurred in organized activity at noon or recess.

Figure 24

Injury Frequency as Related to the Type of Activity for Males in Grades K-6

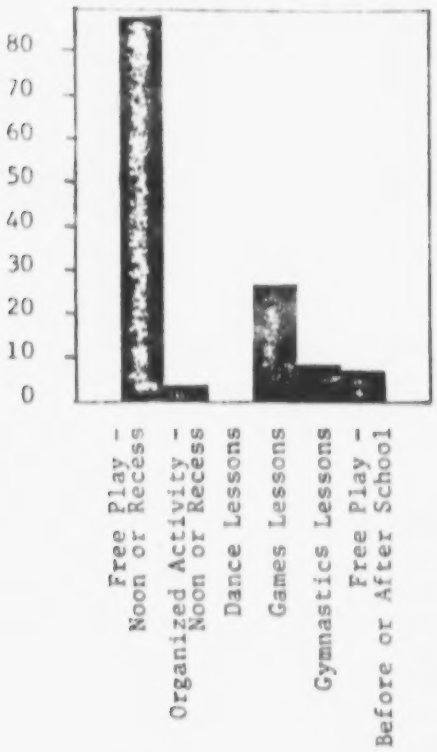


Figure 24. The majority of injuries occurred during the free play period at noon, recess and before and after school accounting for approximately 70 percent of all injuries. In contrast less than 3 percent of all injuries occurred in organized activity at noon and recess.

Figure 25

Injury Frequency as Related to the Type of Activity for Females in Grades K-6

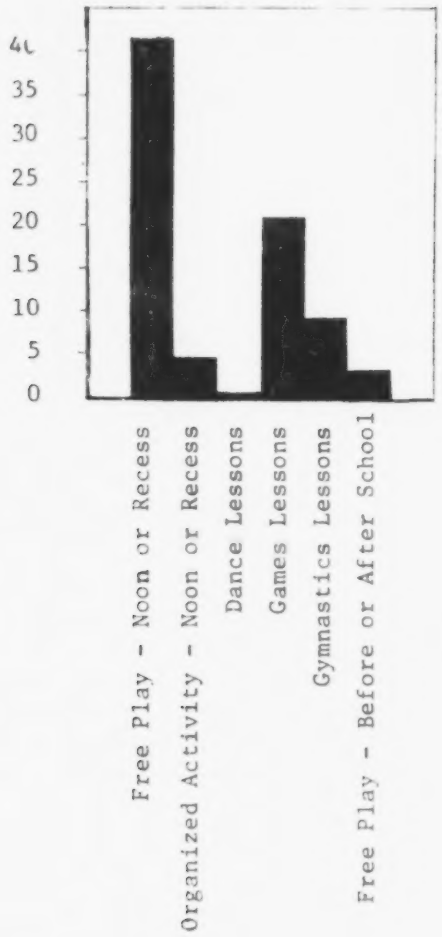
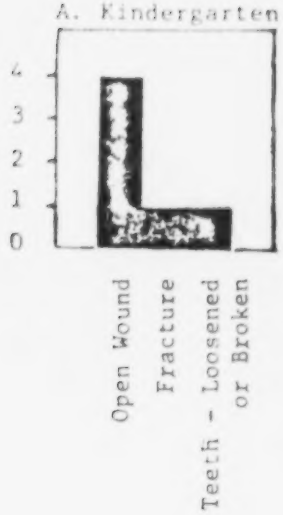


Figure 25. Free play at noon and before and after school accounted for 56 percent of all injuries to females grades K-6. Whereas only 6 percent of injuries to females occurred during organized activities at noon and recess.

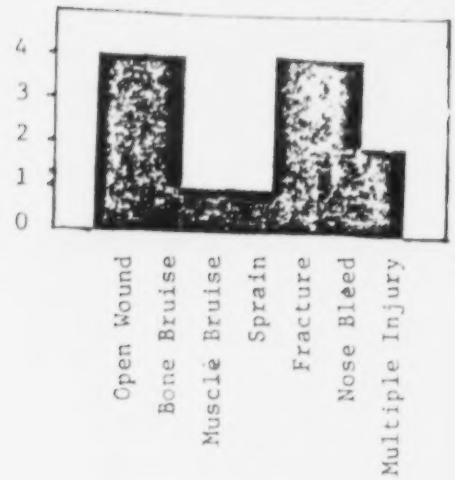
Figure 26

Frequency of the Specific Type of Injury in Each Grade
For Grades K - 6

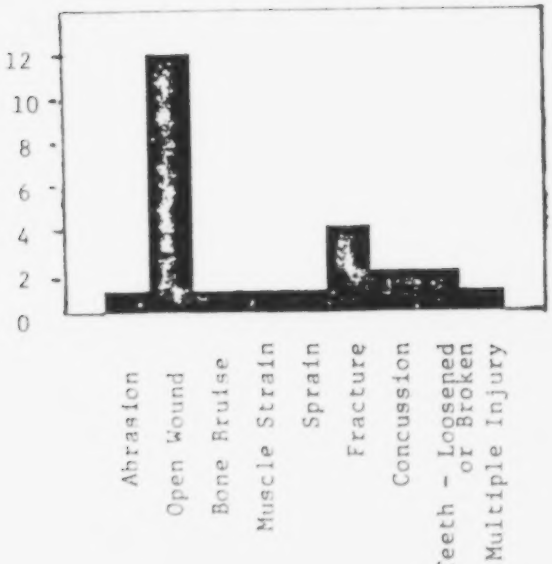
A. Kindergarten



B. Grade 1



C. Grade 2



"D. Grade 3

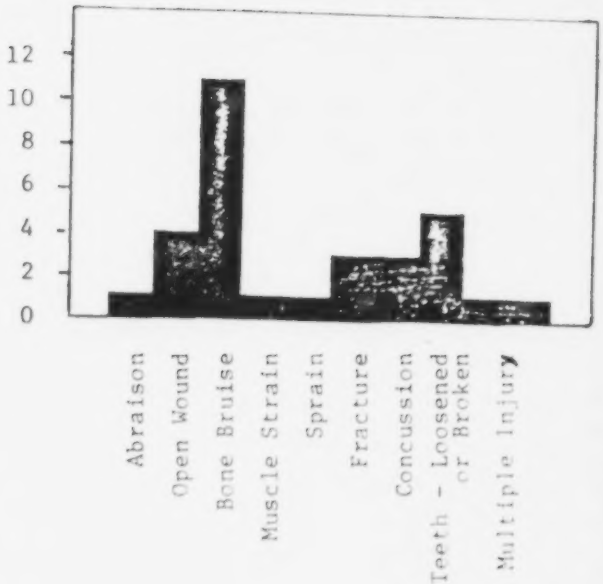
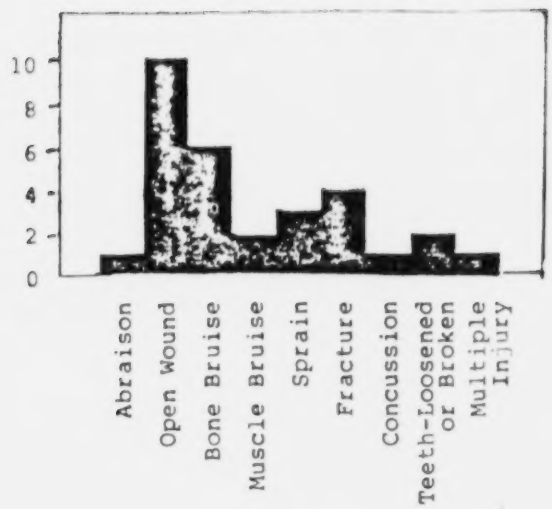
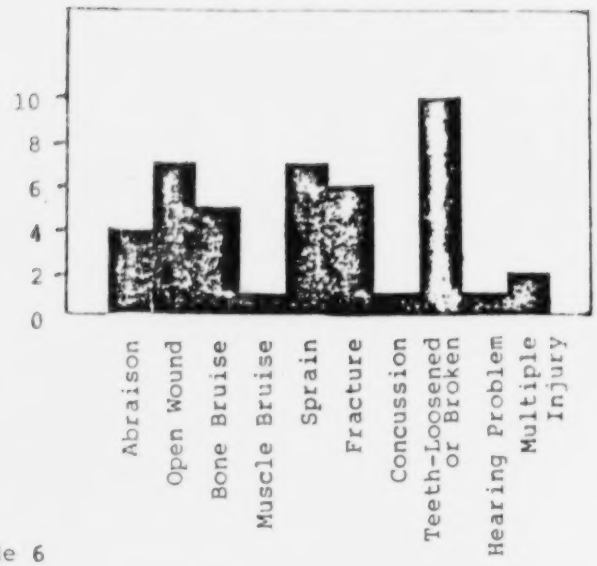


Figure 26 (Continued)

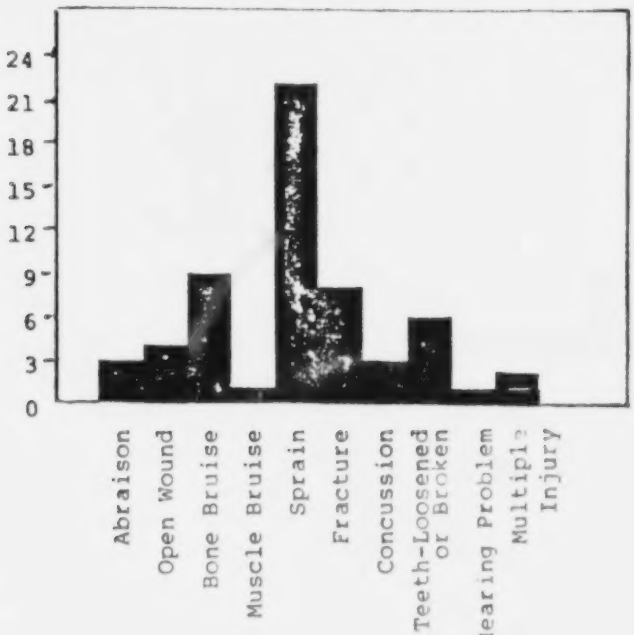
E. Grade 4



F. Grade 5



G. Grade 6



V. SUMMARY OF RESULTS FOR KINDERGARTEN TO THE SIXTH GRADES

1. The injury rate for males and females for the K to 6 grades was 1.25 and 0.77 per cent respectively. Males incurred 26 per cent more injuries than females. The greater number of injuries sustained by the males may be a result of more frequent participation in hazardous activities normally engaged in by males. (see figures 1 and Appendix C)
2. The increase in frequency of injury for the K to 6 grades approximately coincided with the advancement of students from kindergarten to the sixth grade possibly reflecting increased participation as students progressed from kindergarten to grade six. This trend was also observed when an analysis of the frequencies of injury as related to age were made for organized instruction as well as for free play at recess, noon, before school and after school. (see figures 4, 5, and 6, and Table I).
3. The majority of injuries for the K to 6 grades occurred during the 10 to 11, the 12 to 1 and the 2 to 3 time categories (see figure 7). These categories coincided with the recess periods in the morning, noon and afternoon. The analysis of the injury frequency as related to the type of activity (see figure 23), revealed that 60 per cent of all injuries occurred in free play at noon or recess, whereas only four per cent of all injuries occurred in organized activity at noon or recess.

   This trend was also observed when the frequency of injury as related to the type of activity for males and females was compiled (see figures 24 and 25). Males sustained twice as many injuries as did the females for the free play at noon and recess categories (see figures 24 and 25, and Table II).
4. Head, facial and injuries to the teeth accounted for 46 per cent of the total number of injuries for the K to 6 grades. The elbow, wrist,

finger and thumb when taken collectively accounted for 20 per cent of the total , and injuries to the knee, lower leg, ankle and feet when also taken collectively as one area accounted for 16 per cent of the total (see figure 8, and Table VI).

The pattern of injury to body regions and rate of injury for **organized instruction** and for **free play at recess, noon hour, before and after** school was similar to what was observed above. (see figures 9 and 10, and Table VII).

5. An analysis of the frequency of injury as related to the type of injury revealed that open wounds, bone bruises, sprains and dental injuries accounted for 80 per cent of all injuries for the K to 6 grades (see figure 11, and Table III).

The open wound was the predominately occurring injury for the head and facial areas of the body. The wrist, finger and thumb areas were the predominate sites of fractures of all body regions. Sprains of the ankle and knee accounted for 70 per cent of all sprain injuries of all the body areas (see figure 12, and Table V).

6. The majority of injuries for the K to 6 Grades, 53 per cent, occurred on playing field and tarmac. Ranked second as a site of injury was the gymnasium which accounted for 30 per cent of the total. Approximately 11 per cent of the injuries occurred on permanent play equipment (see figure 16, and Table IX).

It is interesting to note that the majority of injuries during organized instruction occurred in the gymnasium, whereas, the majority of injuries during free play at recess, noon hour and before and after school occurred on the playing field and or permanent play equipment (see figures 17 and 18). This result is probably due to the fact that

most free play occurs on playing fields and permanent play equipment.

7. The injury frequency as related to the probable direct cause for the K to 6 grades revealed that a fall or trip not due to any observed external cause accounted for 25 per cent of the total number of injuries. Accidental collision between participants accounted for 21 per cent, a blow delivered by an object 16 per cent, a fall or loss of balance on gymnastic apparatus 12 per cent, and injuries occurring through carelessness on the part of the pupil 11 per cent of the total number of injuries. These five probable direct causes of injury combined accounted for 85 per cent al all injuries in the K to 6 grades (see figure 19, and Table I).

8. When injury frequency was related to program phase it was found that three categories recess (34 per cent), physical education instruction (31 per cent), and free play before or after school or at noon hour (31 per cent) accounted for 96 per cent of all injuries for the K to 6 grades (see Figure 22, and Table IV).

VI. RECOMMENDATIONS FOR KINDERGARTEN TO THE SIXTH GRADE POPULATION

1 Since approximately 60 per cent of all injuries occurred in free play at noon or recess that a greater emphasis be directed toward the provision of supervisors and/or that organized programs of play be instituted during the recess and noon hour periods.

2 Since the scope and depth of analysis of injuries that occurred at noon and during the recess periods is limited by the recording form used in the present study that another study be initiated that would provide an in-depth analysis of injuries that occur at noon and the recess time periods.

3 The predominate type of injury reported in this phase of the study was the open wound. Teachers and coaches should, therefore, be provided with first-aid supplies, and be instructed in the emergency care procedures for this type of injury.

VII. RESULTS FOR THE SEVENTH TO TWELFTH GRADES

The results are presented in histogram form. A summary of results and recommendations follow.

Figure 27

Injury Frequency as Related to Age in Grades 7-12

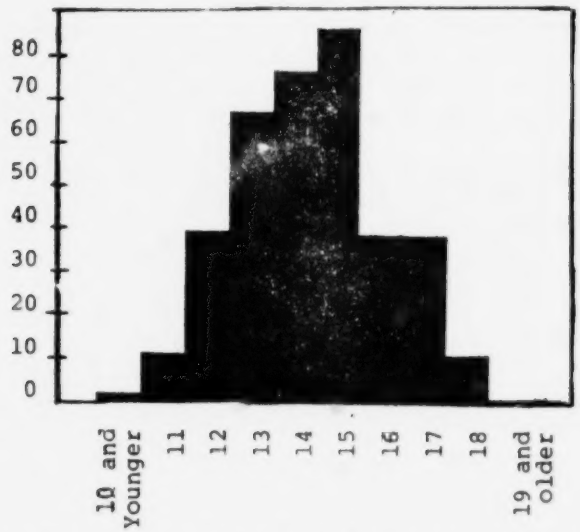


Figure 27. Assuming the number of students per age to be constant, accident frequency was observed to increase to age 15 and then drop off.

Figure 28

Injury Frequency as Related to Grade in Grades 7-12

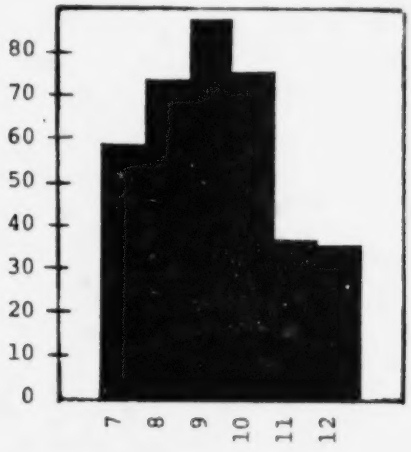


Figure 28. Highest injury frequency is observed to occur in grades 7-10, where physical education is compulsory.

Figure 29

Injury Frequency as Related to Time of Day in Grades 7-12

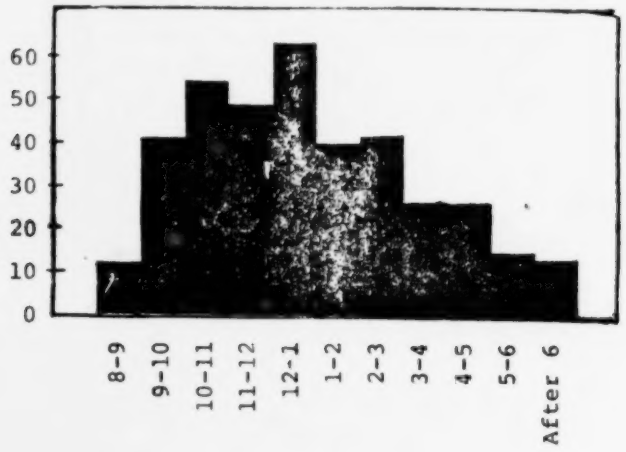


Figure 29. Approximately 76% of all injuries occur during school hours or between 9:00 a.m. and 3:00 p.m.

Figure 30

Injury Frequency as Related to Sex in Grades 7-12

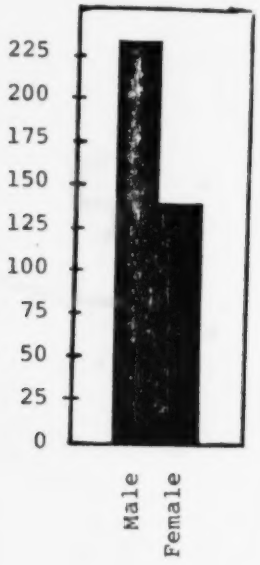


Figure 30. Males were injured approximately 27% more than females.

Figure 31

Injury Frequency as Related to Body Region Injured in Grades 7-12

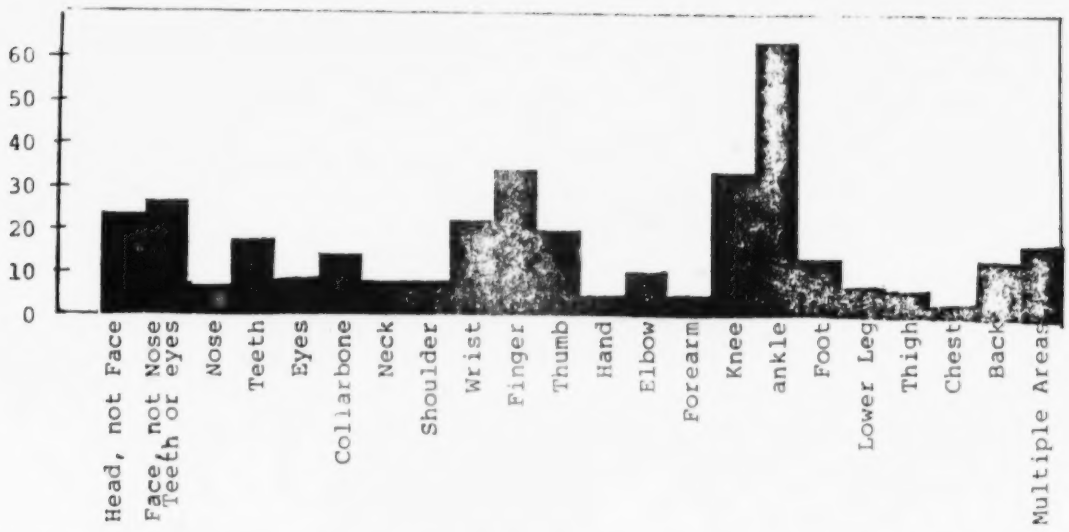


Figure 31. Approximately 26% of all injuries occurred to the ankle and knee; 22% to the wrist, finger thumb and hand; and 21% to the head, face, nose, teeth and eyes.

Figure 32

Injury Frequency as Related to the Type of Injury in Grades 7-12

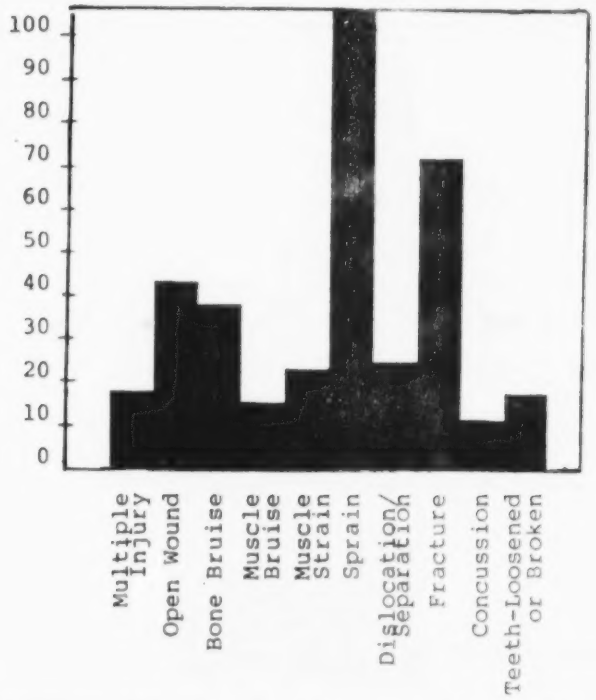


Figure 32. Approximately 55% of all injuries were sprains, fractures and dislocations. This correlates with the percentage of injuries which occurred to the joint and bone regions of the body. Sprains were the most predominant type of injury which occurred in Grades 7-12.

Figure 33. Injury Frequency as Related to Facility Area in Grades 7-12

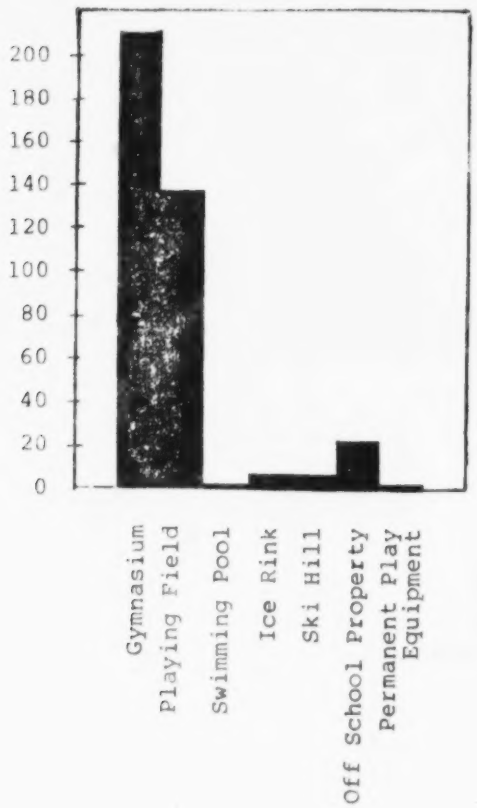


Figure 33. More injuries occur in the gymnasium than on the playing field

Figure 34. Injury Frequency as Related to Program Phase in Grades 7-12

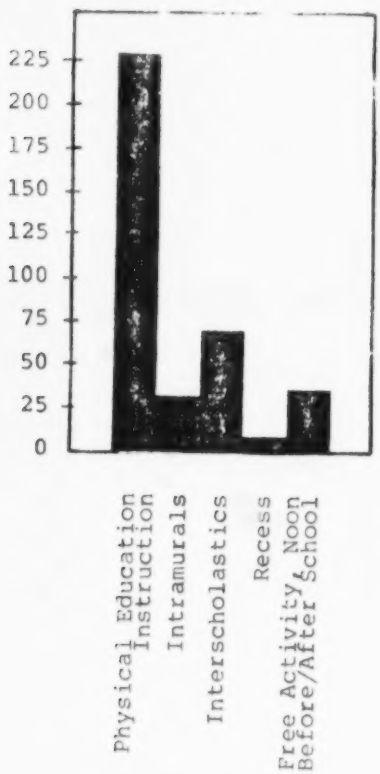


Figure 34. Physical education classes accounted for the greatest number of injuries.

Figure 35

Injury Frequency as Related to Probable Direct Cause in Grades 7-12

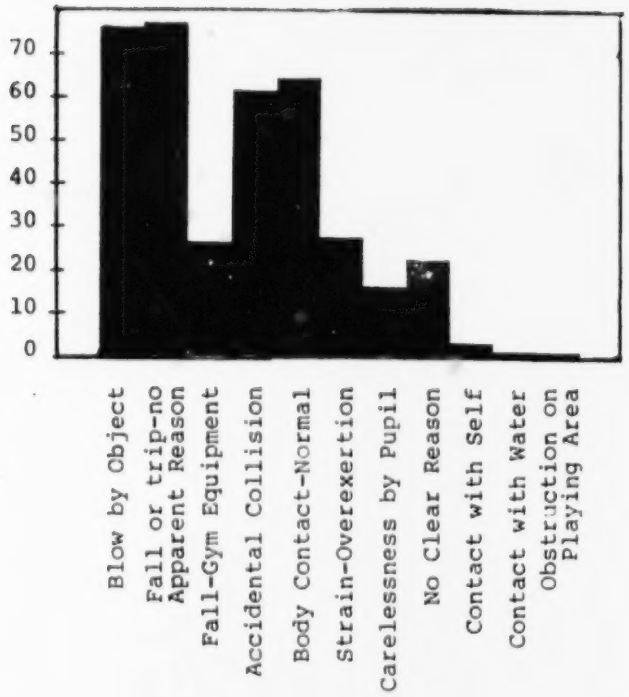


Figure 35. Approximately 55% of all injuries occur as a result of body contact with another individual or with an object. Another 28% occur as a result of falling either off some type of equipment or while playing a game.

Figure 36

Injury Frequency as Related to the Type of Activity in Grades 7-12

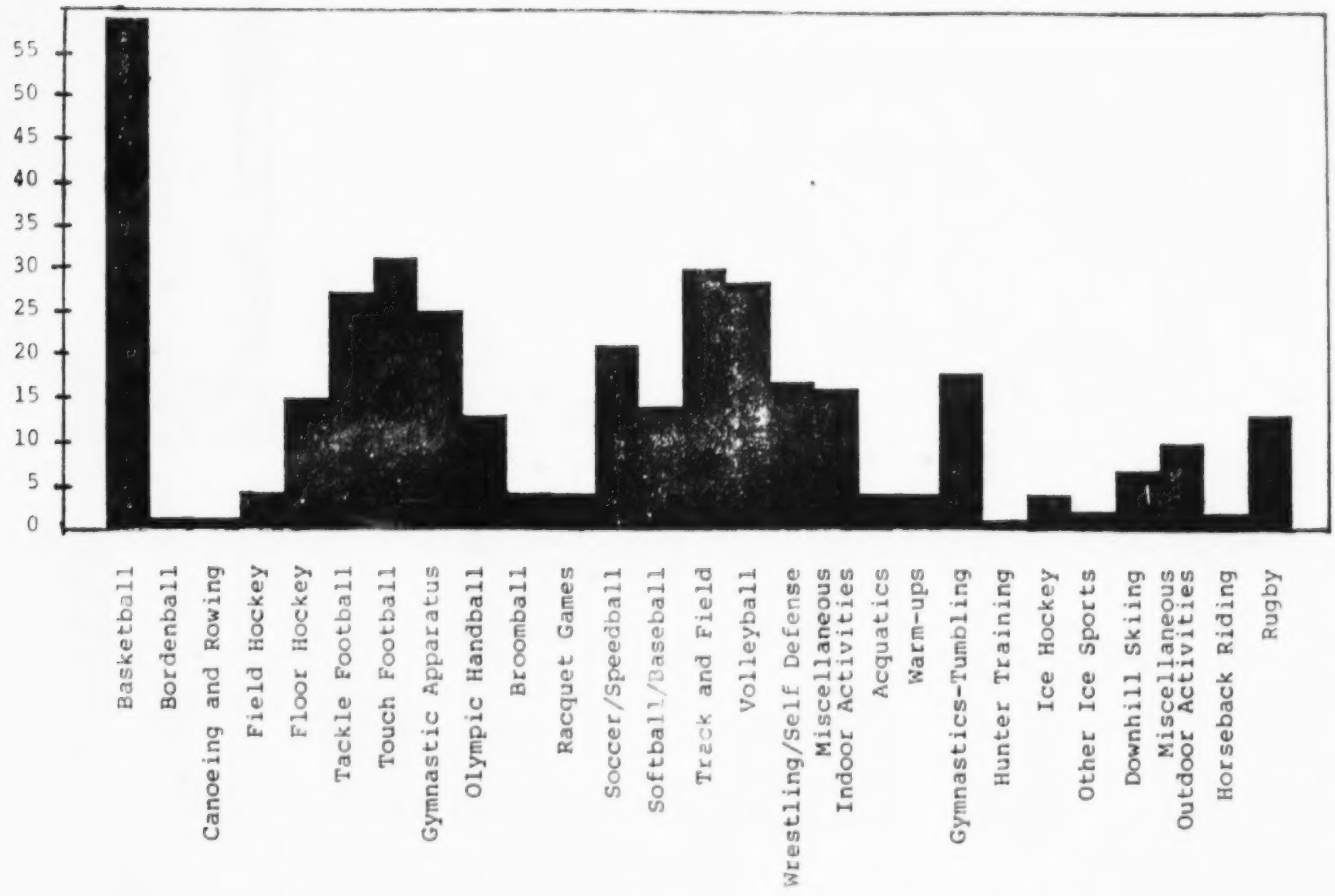


Figure 36. Participation in Basketball accounted for more injuries (16%) than any other activity although touch and tackle football combined also accounted for 16% of all injuries. Gymnastics (11%), Track and Field (8%), and Volleyball (8%) were the next most hazardous activities.

Figure 37

Injury Frequency by Grade as Related to Program Phase in Grades 7-12

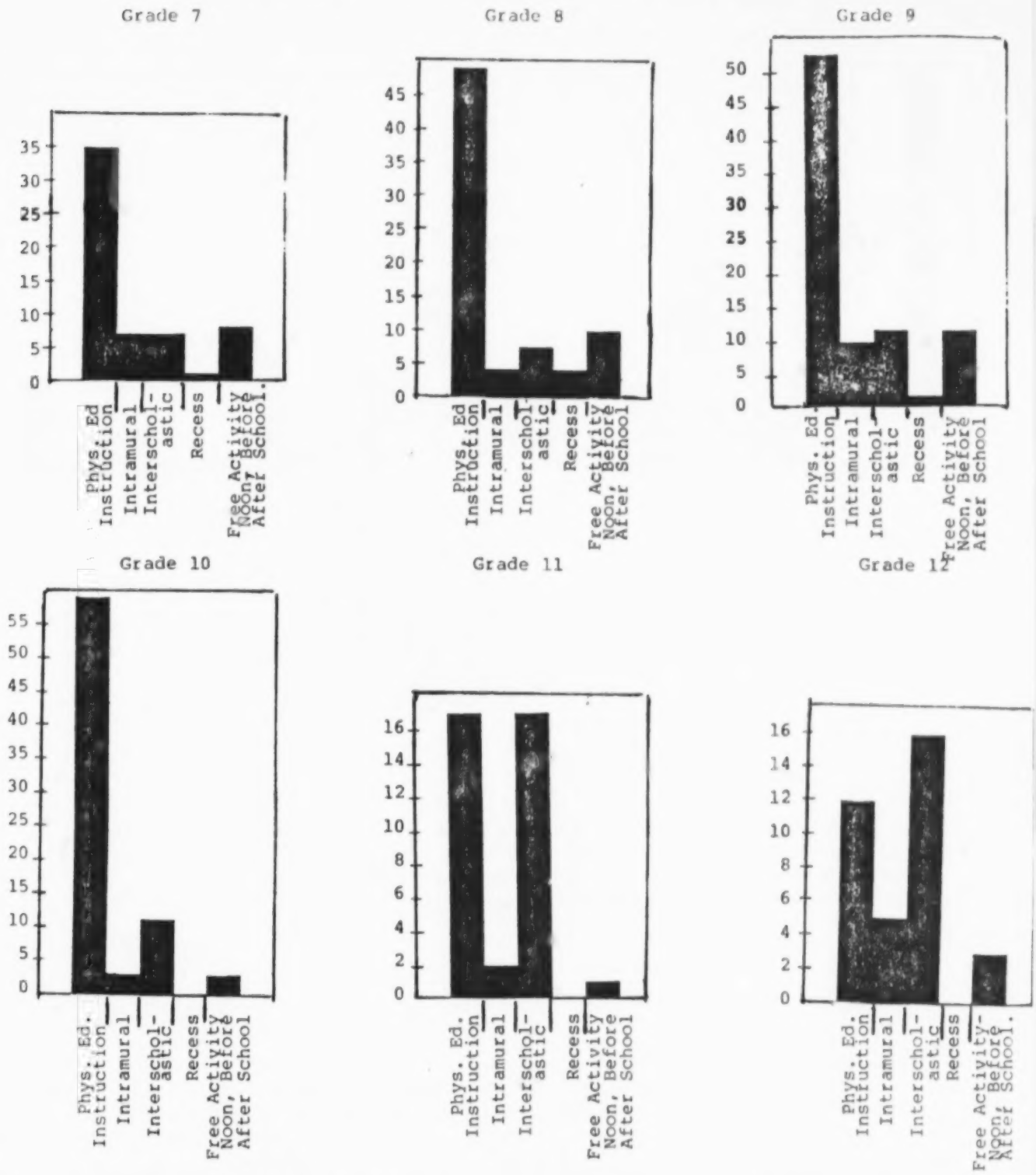


Figure 37. In grades 7-10 a significanly greater number of injuries occur during physical education courses than in any other phase of the program. However, in Grades 11 and 12 more injuries occur during Interscholastic activity than any other phase of the program.

Figure 38

Frequency of Injury in Selected Activities as Related to Probable Direct Cause in Grades 7-12

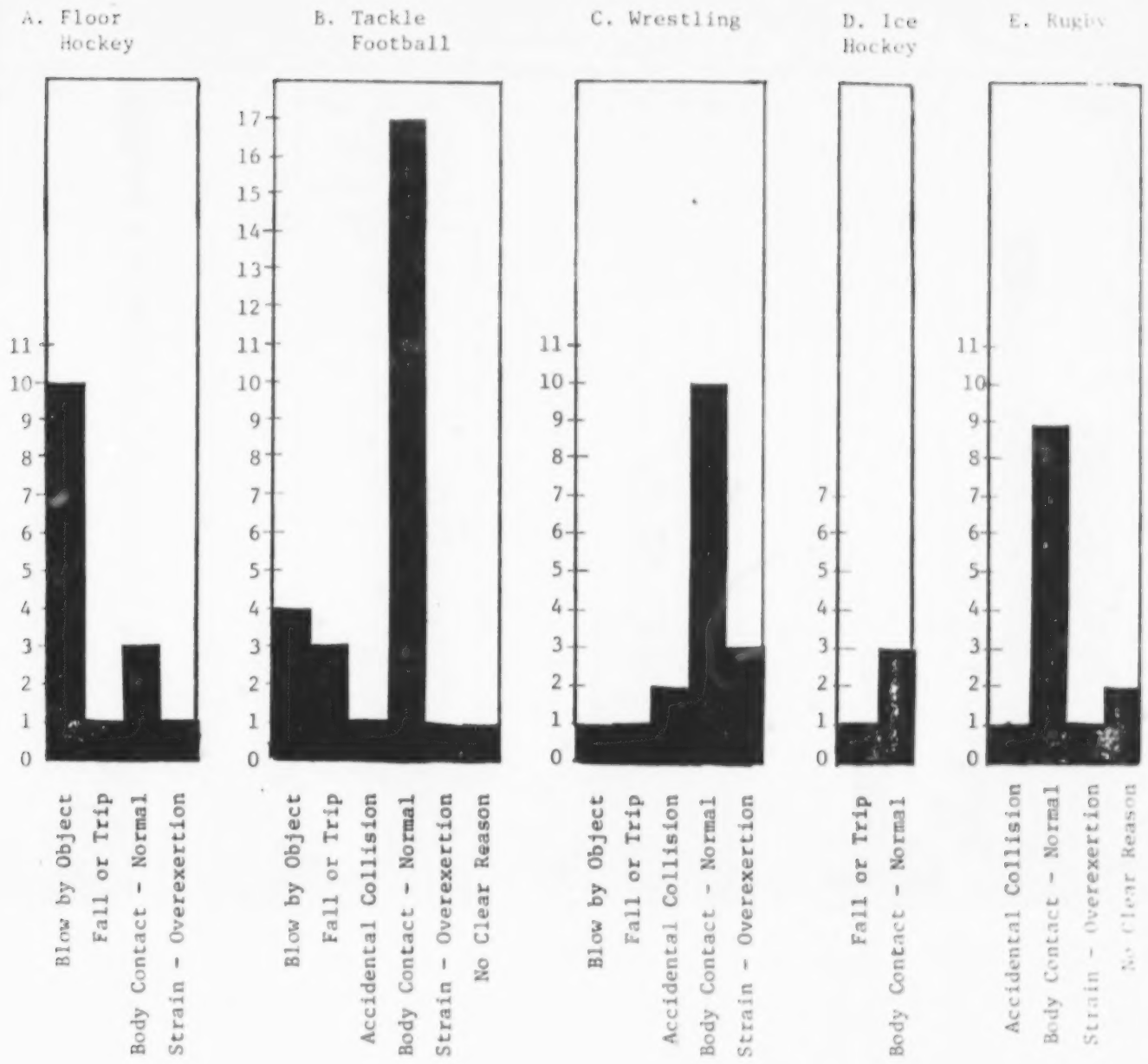


Figure 38.

A. A blow by an object accounted for 67% of the injuries in floor hockey.
B. Normal body contact accounted for 63% of the injuries in tackle football.
C. Normal body contact accounted for 59% of the injuries in wrestling/self defense.
D. Normal body contact accounted for 75% of the injuries in ice hockey.
E. Normal body contact accounted for 69% of the injuries in rugby.

Figure 38 (Continued)

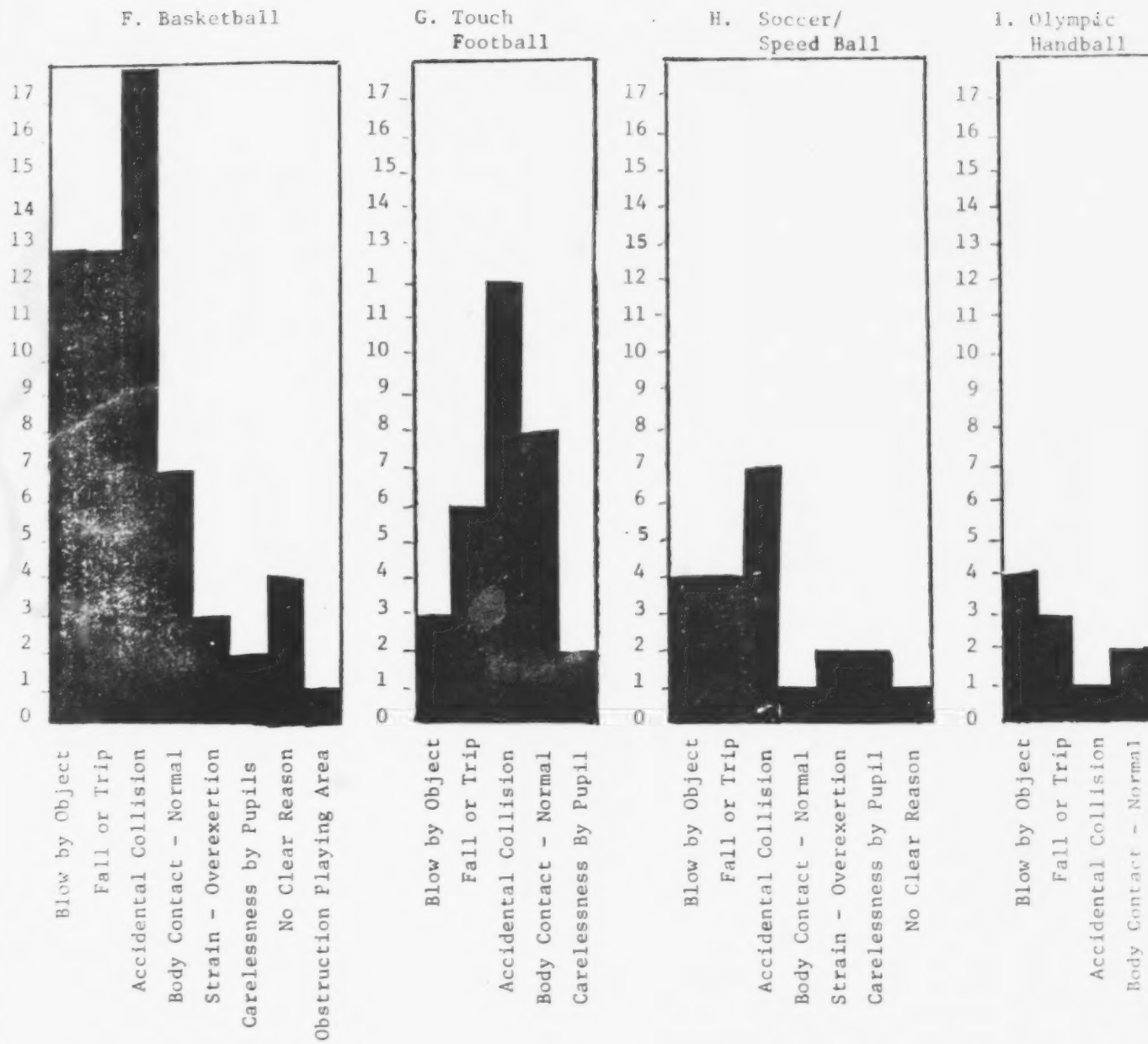


Figure 38.
F. Some form of body contact accounted for 36% of the injuries in Basketball.
G. Some form of body contact accounted for 65% of the injuries in Touch Football.
H. Accidental collision accounted for 33% of the injuries in Soccer/Speedball.
I. A blow by an object accounted for 33% of the injuries in Olympic Handball.

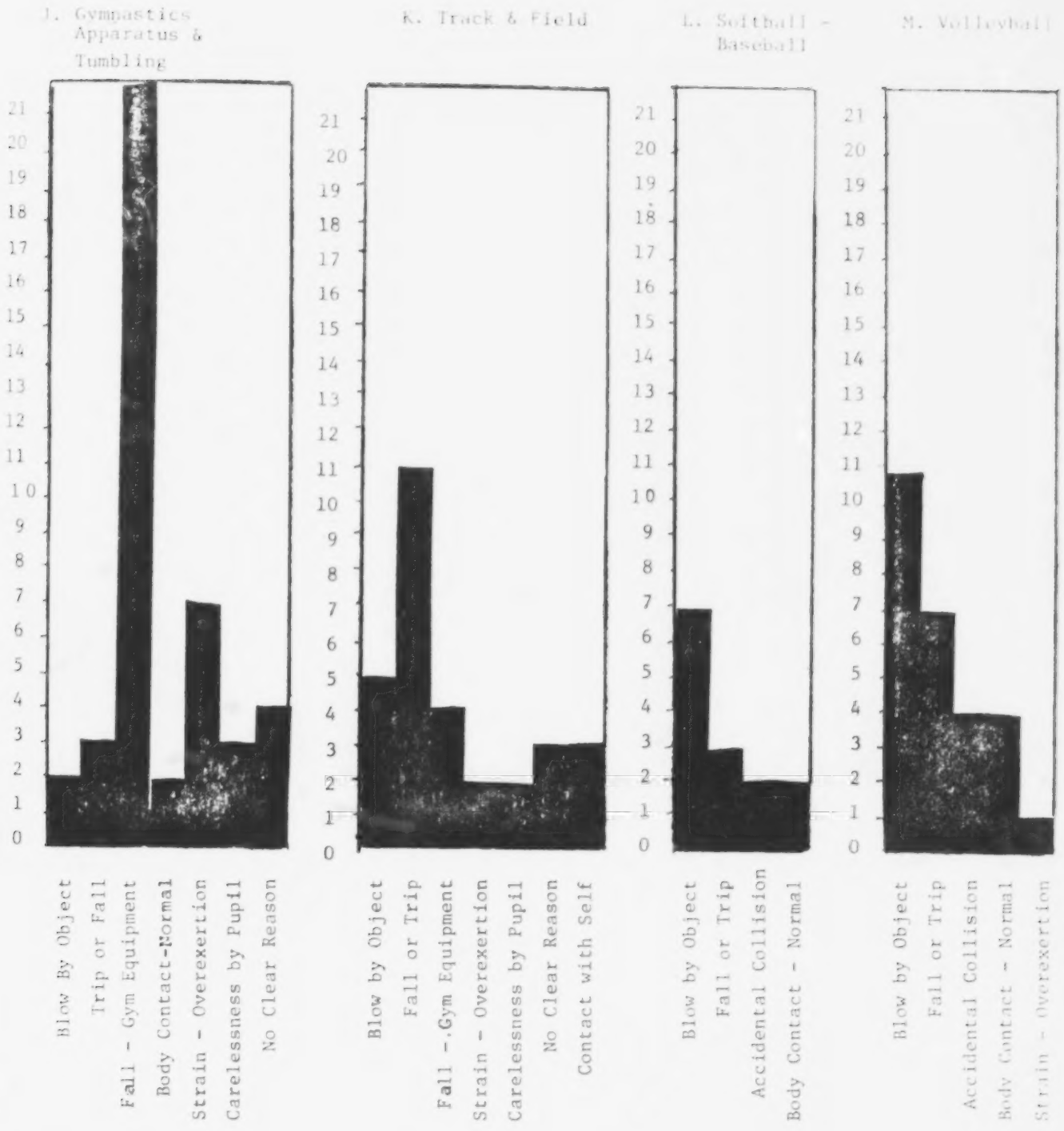


Figure 38.
J. Falls from apparatus accounted for 51% of the injuries in Gymnastics.
K. Falling or tripping accounted for 37% of the injuries in Track and Field.
L. A blow by an object accounted for 50% of the injuries in Softball/Baseball.
M. A blow by an object accounted for 39% of the injuries in Volleyball.

Figure 39

Frequency of Injury in Selected Activities as Related to Program Phase in Grades 7-12

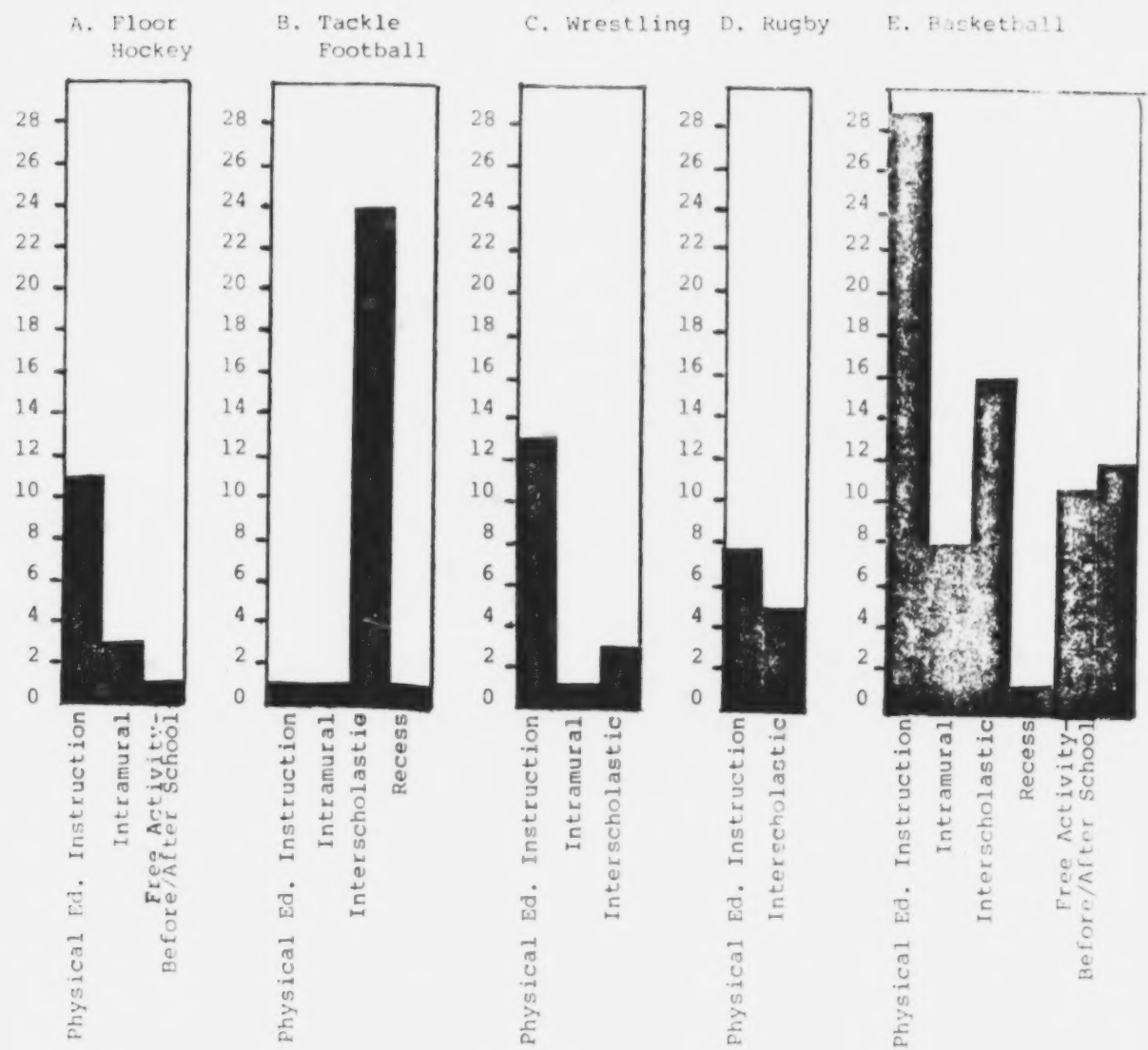


Figure 39.

A. 73% of injuries in Floor Hockey occurred during physical education instruction.
B. 89% of injuries in Tackle Football occurred during interscholastic competition.
C. 76% of injuries in Wrestling/Self Defense occurred during physical education instruction.
D. 62% of injuries in Rugby occurred during physical education instruction.
E. 48% of injuries in Basketball occurred during physical education instruction, and 26% during interscholastic competition.

Figure 39 (Continued)

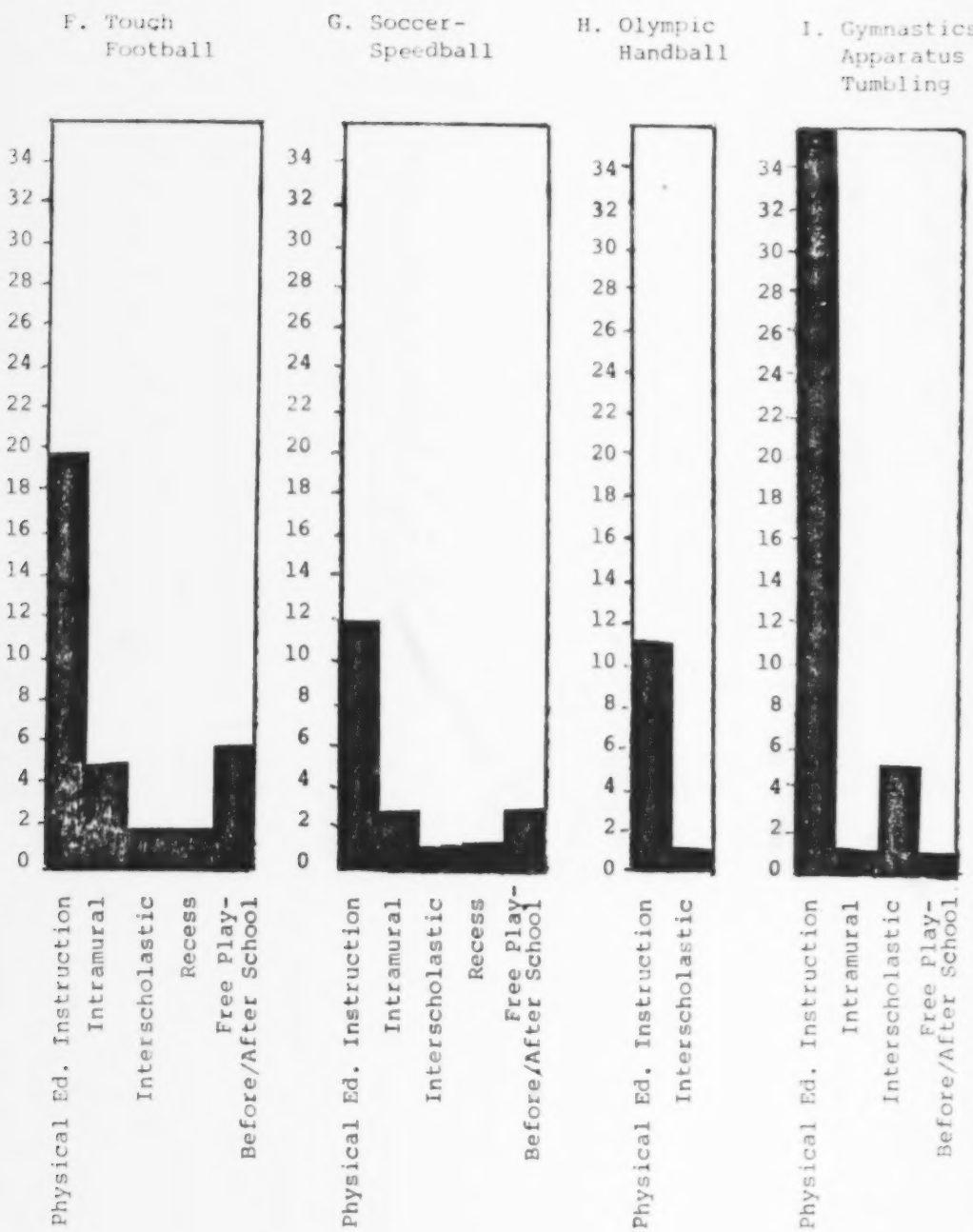


Figure 39.

F. 55% of injuries in Touch Football occurred during physical education instruction.

G. 60% of injuries in Soccer/Speedball occurred during physical education instruction.

H. 92% of injuries in Olympic Handball occurred during physical education instruction.

I. 84% of injuries in Gymnastics occurred during physical education instruction.

Figure 39 (Continued)

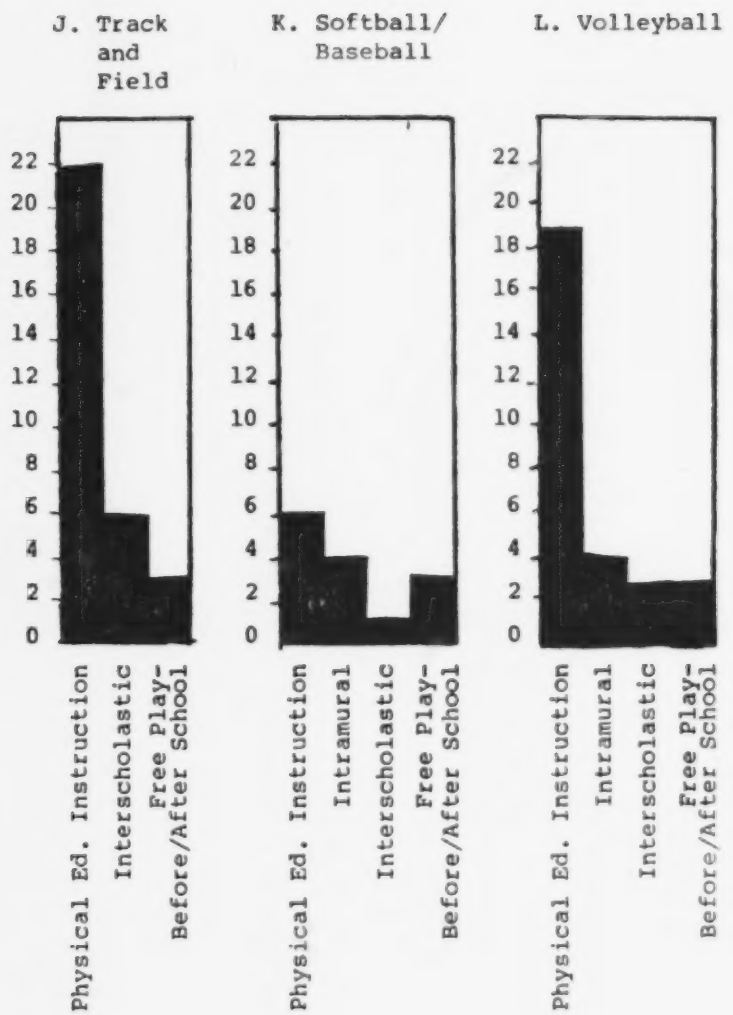
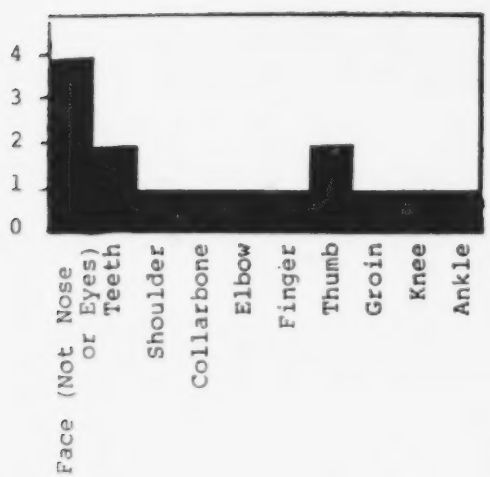


Figure 39.
J. 71% of injuries in Track and Field occurred during physical education instruction.
K. 43% of injuries in Softball/Baseball occurred during physical education instruction. and 29% occurred during intramurals.
L. 64% of injuries in Volleyball occurred during physical education instruction.

Figure 40

Frequency of Injury in Selected Activities as Related to Body Region Injured in Grades 7-12

A. Floor Hockey



B. Tackle Football

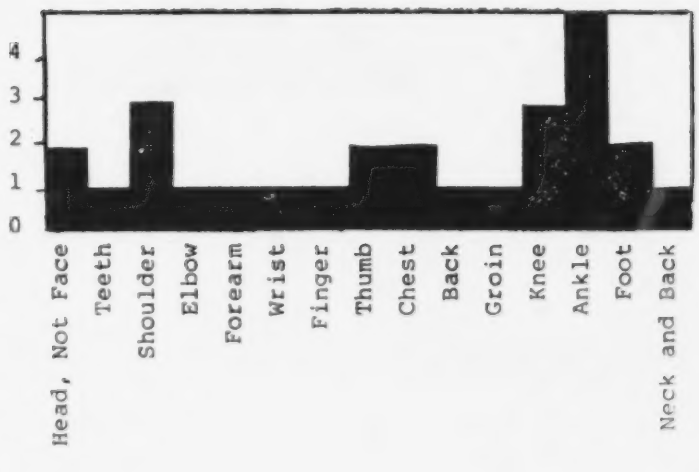


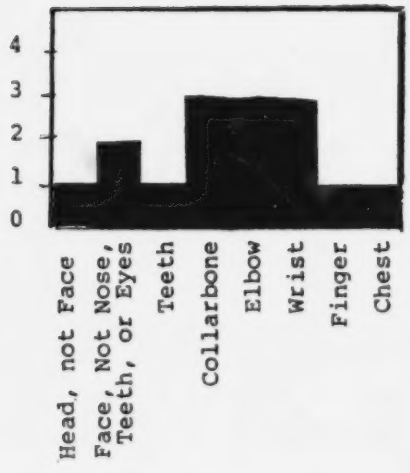
Figure 40.

A. 41% of injuries in Floor Hockey occurred in the facial area and 20% occurred to the hand or part of the hand.

B. 19% of injuries in Tackle Football occurred to the ankle. The next most injured regions were the hand area (15%), knee (11%), shoulder (11%), and facial area (11%).

Figure 40 (Continued)

C. Wrestling



D. Rugby

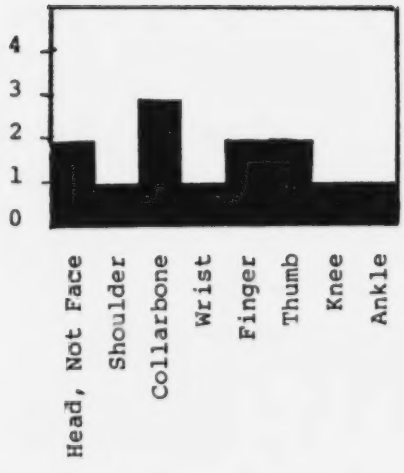


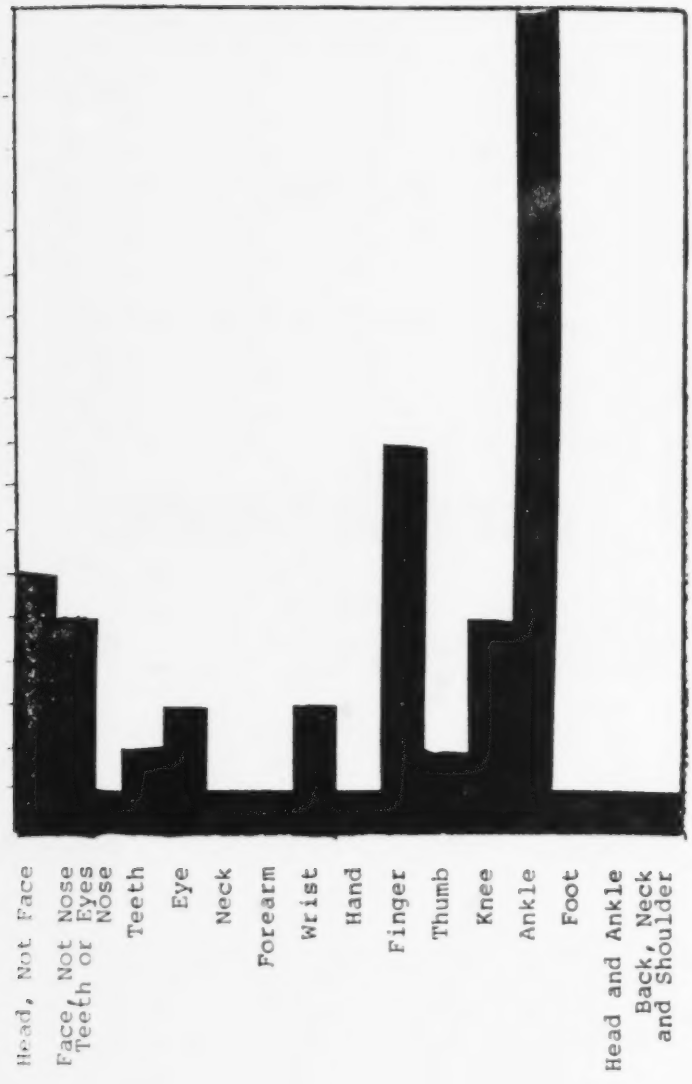
Figure 40.

C. The head and facial region and the hand area were the most commonly injured body regions in Wrestling/Self Defense with 27% of the injuries each. The next most injured body regions were the collarbone (20%), and the elbow (20%).

D. 38% of all injuries in Rugby occurred to the hand area and 31% occurred to the shoulder and collarbone area.

Figure 40 (Continued)

E. Basketball



F. Touch Football

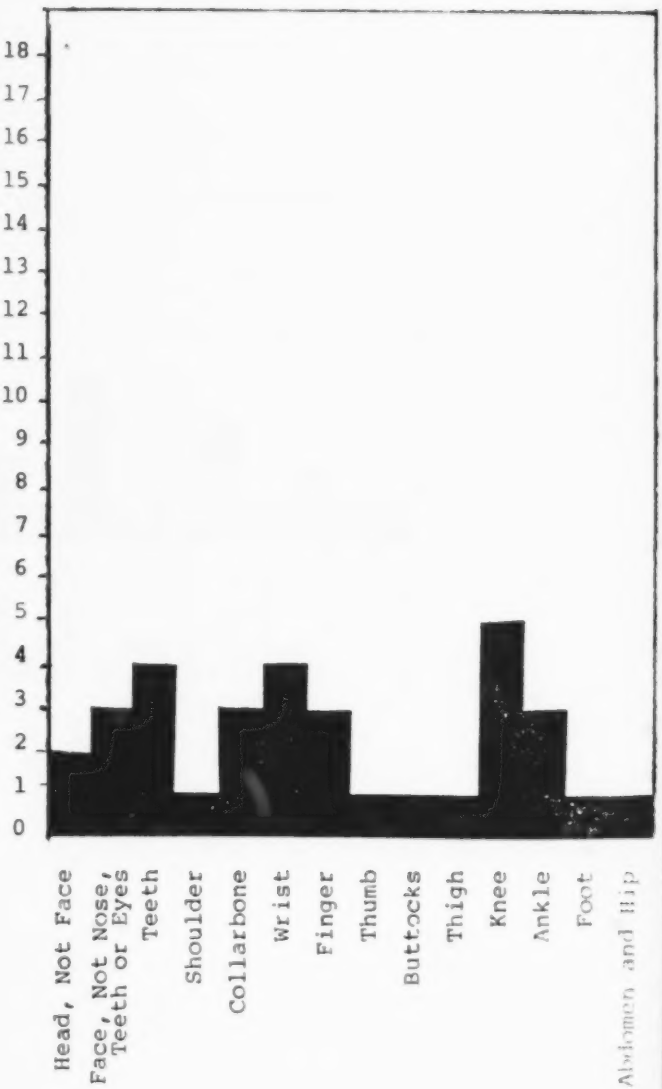


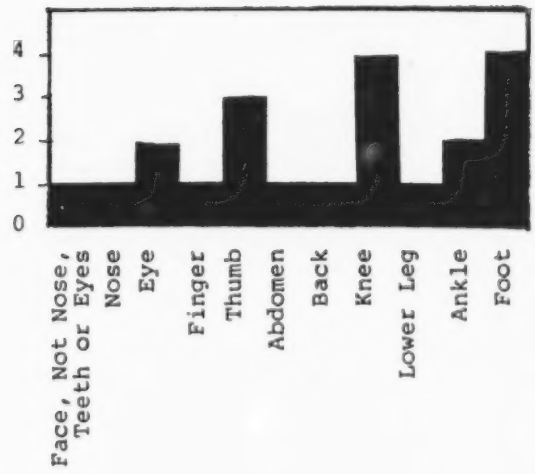
Figure 40.

E. 31% of injuries in Basketball occurred to the ankle; 29% to the head and facial area; and 25% to the hand area.

F. 27% of injuries in Touch Football occurred to the head and facial area; 24% to the hand area; 15% to the knee; 12% to the shoulder and collarbone area and 9% to the ankle.

Figure 40 (Continued)

G. Soccer/Speedball



H. Olympic Handball

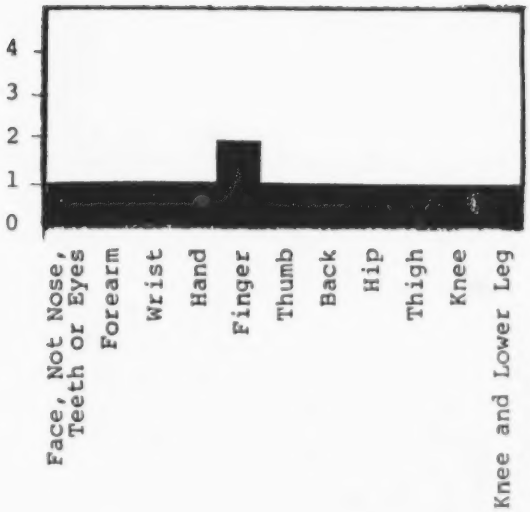


Figure 40
G. 28% of the injuries in Soccer/Speedball occurred to the foot and ankle; 19% to the facial area; 19% to the hand area; and 19% to the knee.
H. 23% of the injuries in Olympic Handball occurred to the hand area.

Figure 40 (Continued)

I. Gymnastics Apparatus and Tumbling

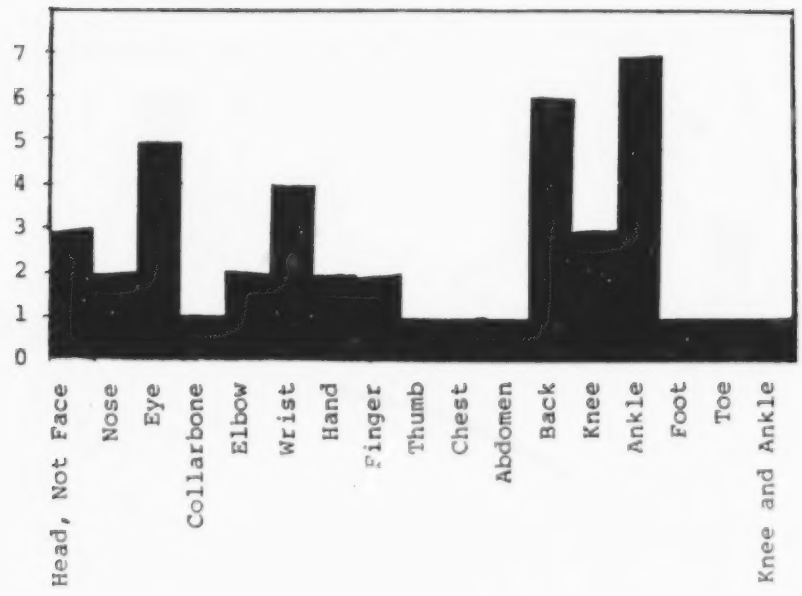


Figure 40.
I. 23% of injuries in gymnastics occurred to the head and facial area; 21% to the hand area; 21% to the ankle and foot: and 14% to the back.

Figure 40 (Continued)

J. Track and Field

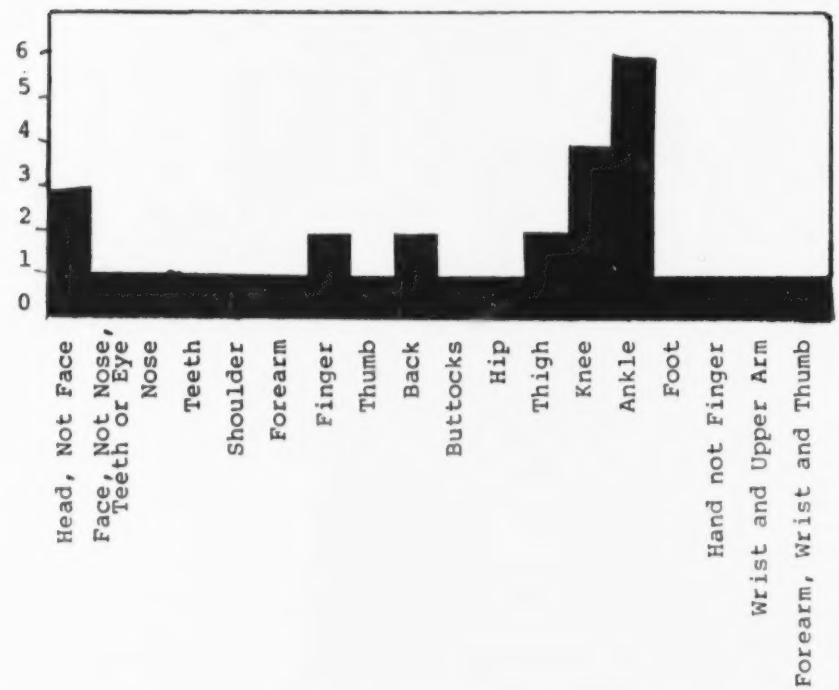
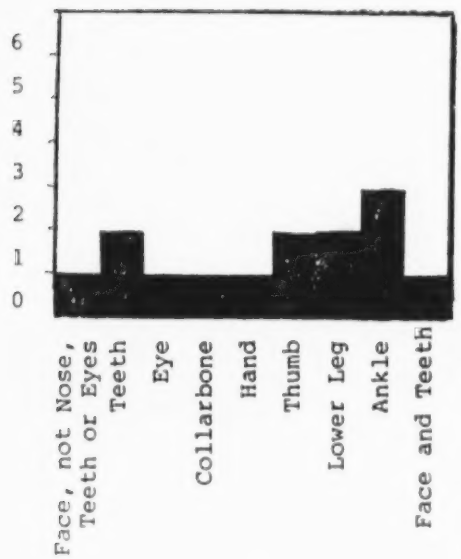


Figure 40.
J. 23% of injuries in Track and Field occurred to foot and ankle; 19% to the head and facial area; 19% to the hand area; and 13% to the knee.

Figure 40 (Continued)

K. Softball/Baseball



L. Volleyball

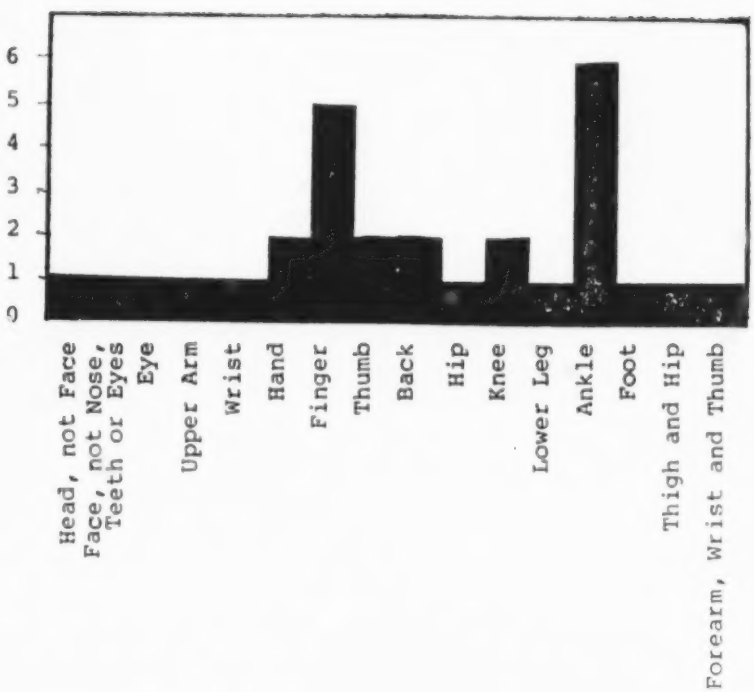


Figure 40.

K. 38% of injuries in Softball/Baseball occurred to the head and facial area; 21% to the ankle; and 21% to the hand area.

L. 38% of injuries in Volleyball occurred to the hand area and 24% to the foot and ankle.

Figure 41

Frequency of Injury in Selected Activites as Related to Time of Day in Grades 7-12

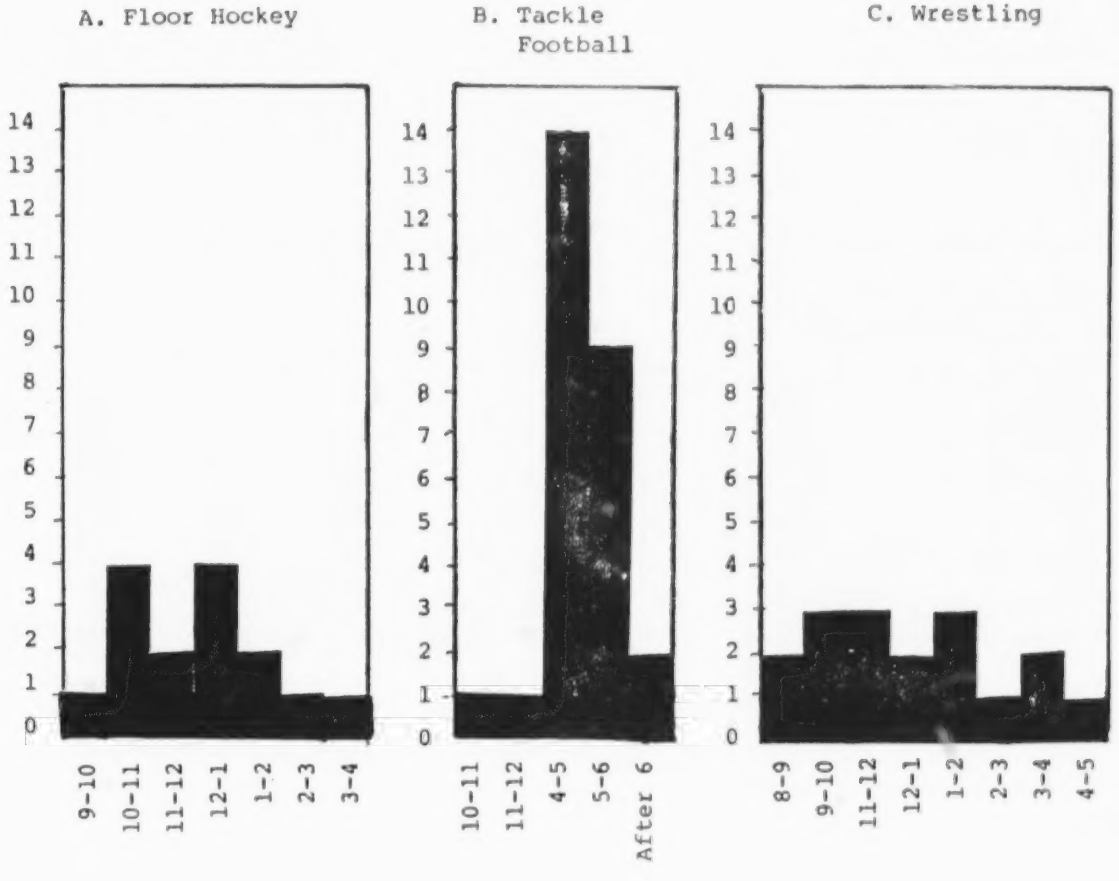


Figure 41.
A. 27% of injuries in Floor Hockey occurred between 10-11 a.m. as well as noon and 1:00 p.m.
B. 85% of injuries in Tackle Football occurred between 4-6 p.m.
C. Wrestling injuries appeared to be evenly distributed throughout the day.

Figure 41 (Continued)

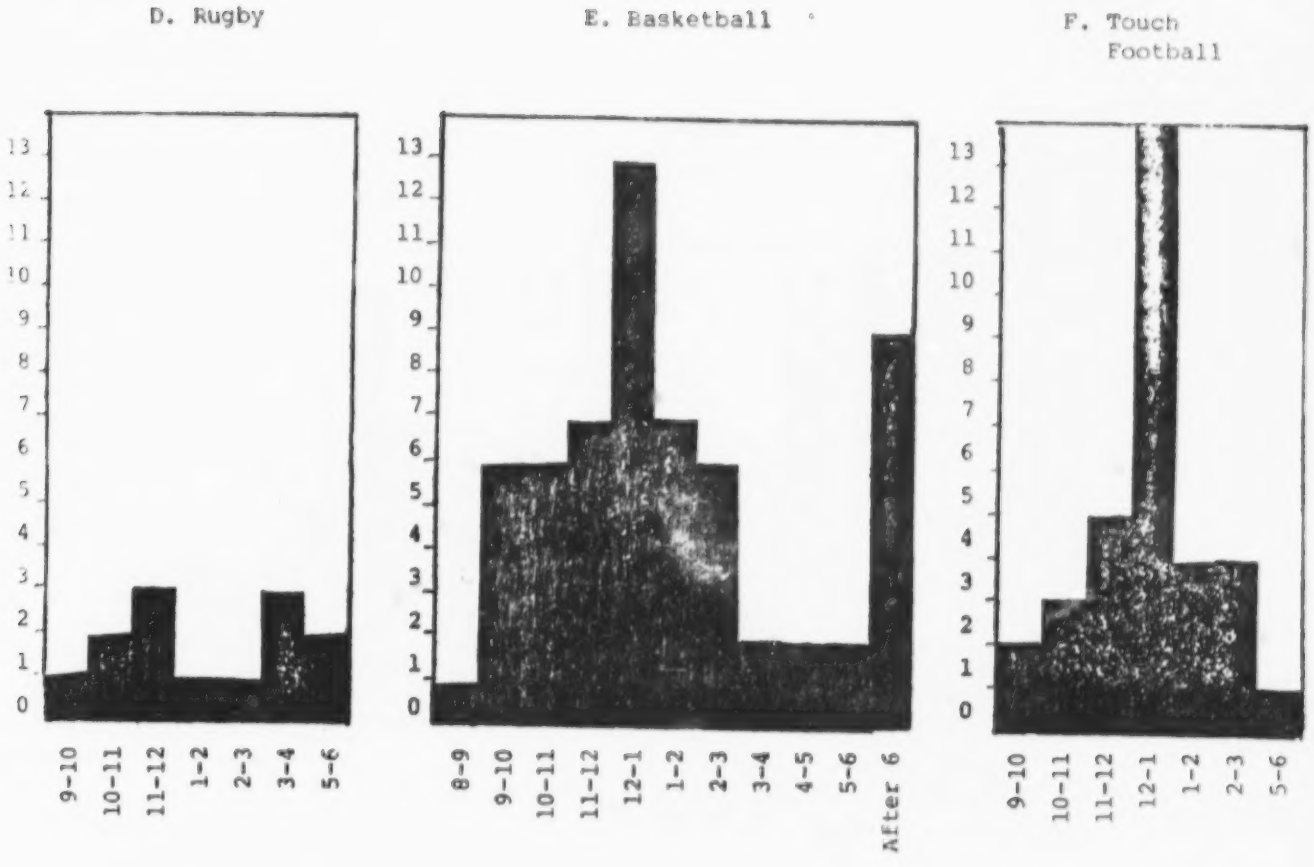


Figure 41.
D. Rugby injuries appeared to be evenly distributed throughout the day.
E. 21% of injuries in Basketball occurred between noon and 1:00 p.m., while 15% occurred after 6:00 p.m.
F. 61% of injuries in Touch Football occurred between noon and 1:00 p.m.

Figure 41 (Continued)

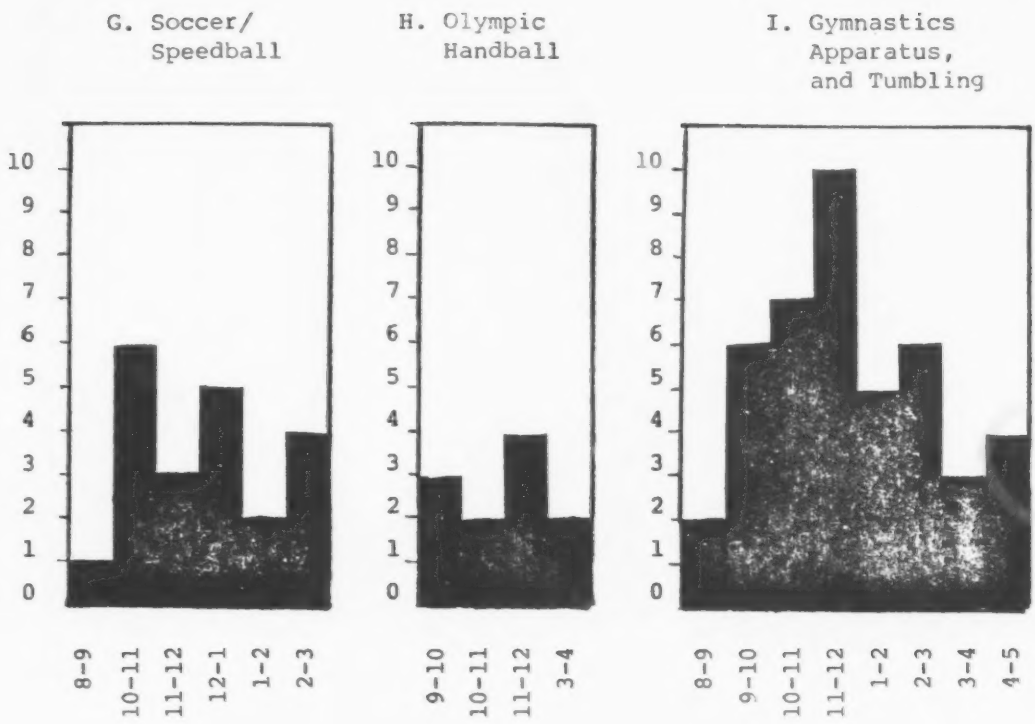
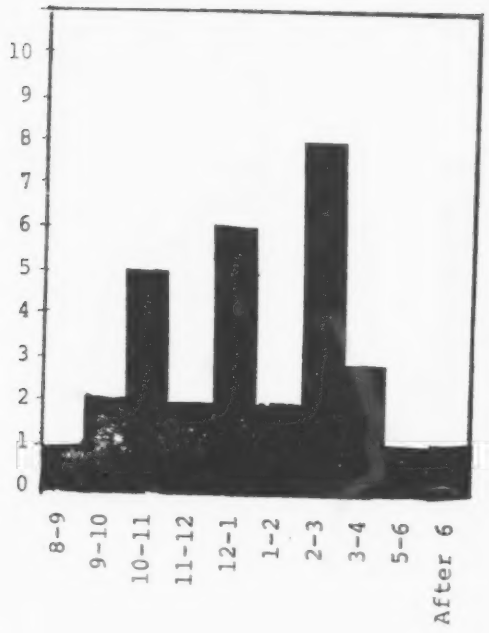


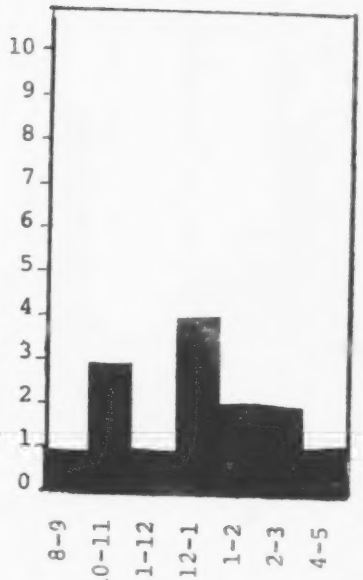
Figure 41.
G. 67% of injuries in Soccer/Speedball occurred between 10:00a.m. and 1:00 p.m.
H. 84% of injuries in Olympic/Handball occurred between 9:00 a.m. and noon.
I. 23% of injuries in Gymastics occurred between 11 - noon , while no injuries occurred between noon and 1:00 p.m.

Figure 41 (Continued)

J. Track and Field



K. Softball/ Baseball



L. Volleyball

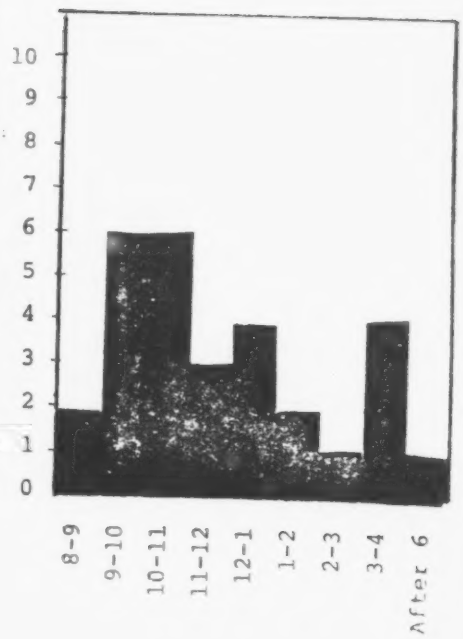


Figure 41.
J. 16% of injuries in Track and Field occurred between 10-11:00 a.m.; 19% between noon and 1:00 p.m.; and 26% between 2-3:00 p.m.
K. 86% of injuries in Softball/Baseball occurred between 10-3:00 p.m.
L. 41% of injuries in Volleyball occurred between 9-11:00 a.m.

Figure 42

Frequency of Injury in Selected Activites as Related to Grade in Grades 7-12

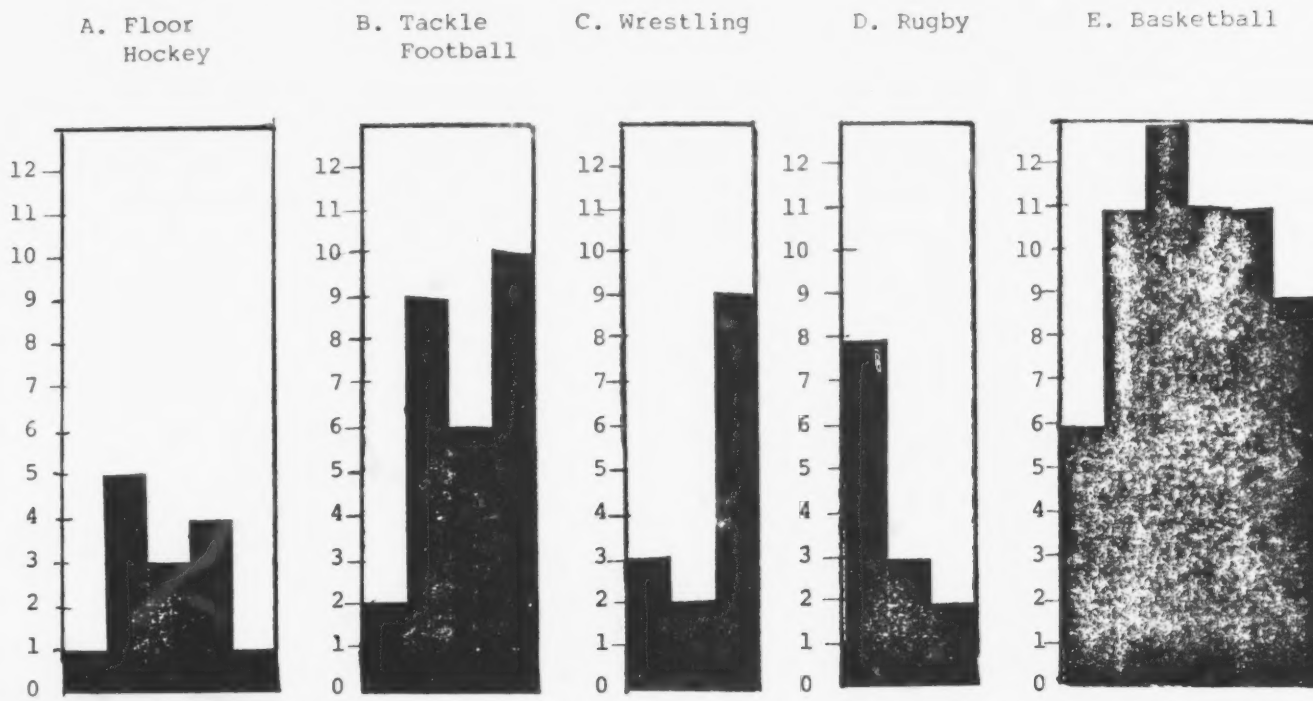

A. Floor Hockey
B. Tackle Football
C. Wrestling
D. Rugby
E. Basketball
0 1 2 3 4 5 6 7 8 9 10 11 12
Grade 7 Grade 8 Grade 9 Grade 10 Grade 12
Grade 7 Grade 10 Grade 11 Grade 12
Grade 7 Grade 9 Grade 10
Grage 10 Grade 11 Grade 12
Grade 7 Grade 8 Grade 9 Grade 10 Grade 11

Figure 42.
A. 86% of injuries in Floor Hockey occurred in Grades 8, 9, and 10.
B. 93% of injuries in Tackle Football occurred in grades 10, 11 and 12.
C. 79% of injuries in Wrestling/Self Defense occurred in grades 9 and 10.
D. 100% of injuries in rugby occurred in grades 10, 11 and 12.
E. Basketball injuries appeared to be equally distributed throughout grades 7-12.

Figure 42 (Continued)

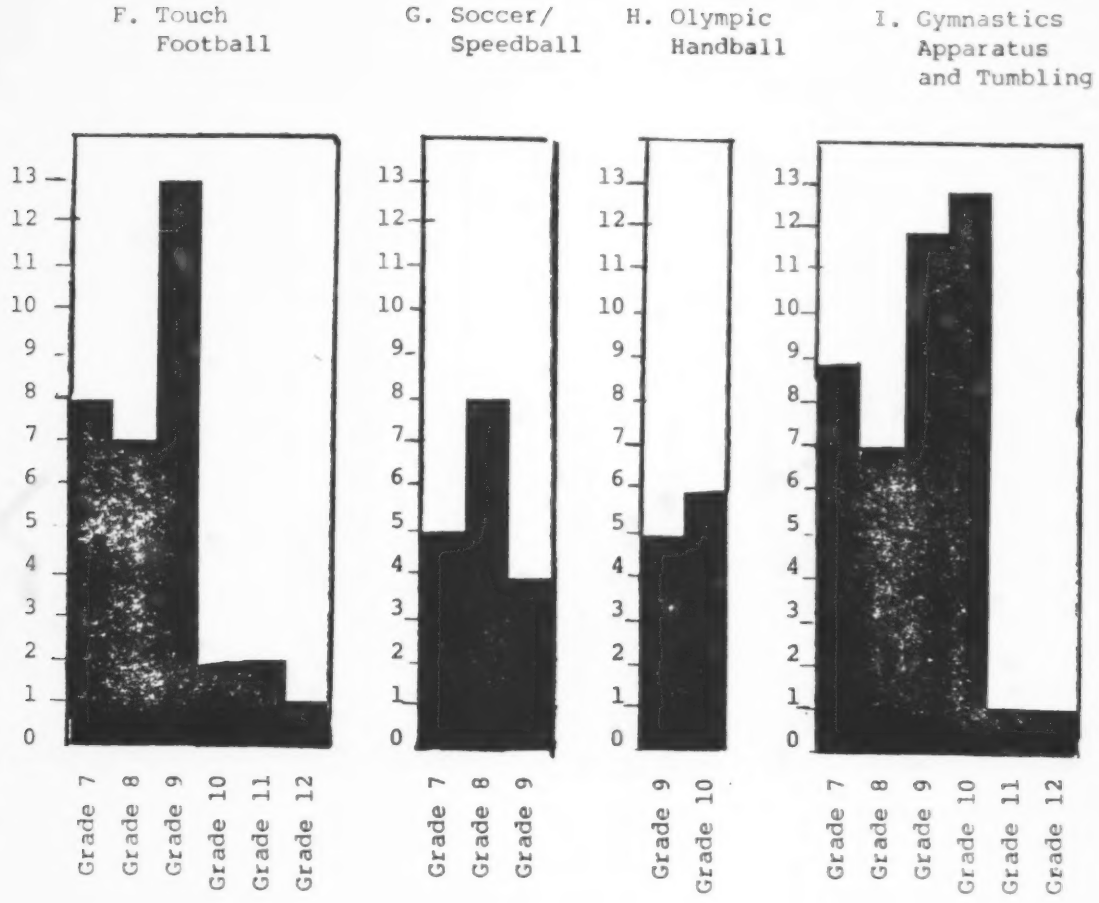


Figure 42.
F. 85% of injuries in Touch Football occurred in grades 7, 8 and 9.
G. 100% of injuries in Soccer/Speedball occurred in grades 7, 8, and 9.
H. 100% of injuries in Olympic Handball occurred in grades 9 and 10.
I. Only 5% of injuries in Gymnastics occurred in grades 11 and 12.

Figure 42 (Continued)

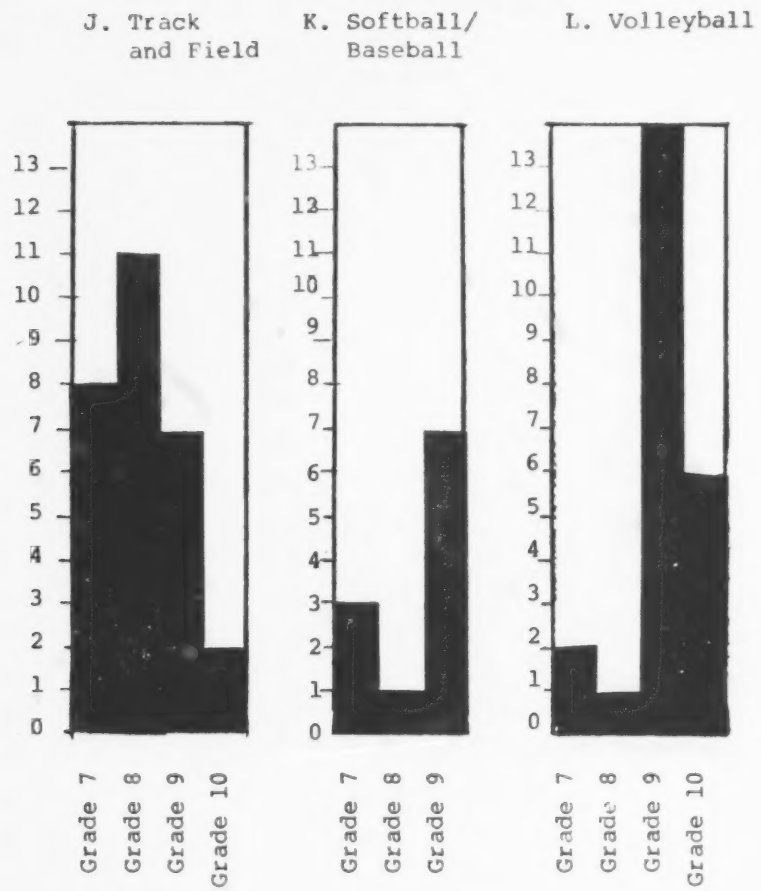


Figure 42.
J. 93% of injuries in Track and Field occurred in grades 7, 8 and 9.
K. 100% of injuries in Softball/Baseball occurred in grades 7, 8 and 9.
L. 41% of injuries in Volleyball occurred in grade 9.

Figure 43

Frequency of Injury in Selected Activites as Related to Age in Grades 7-12

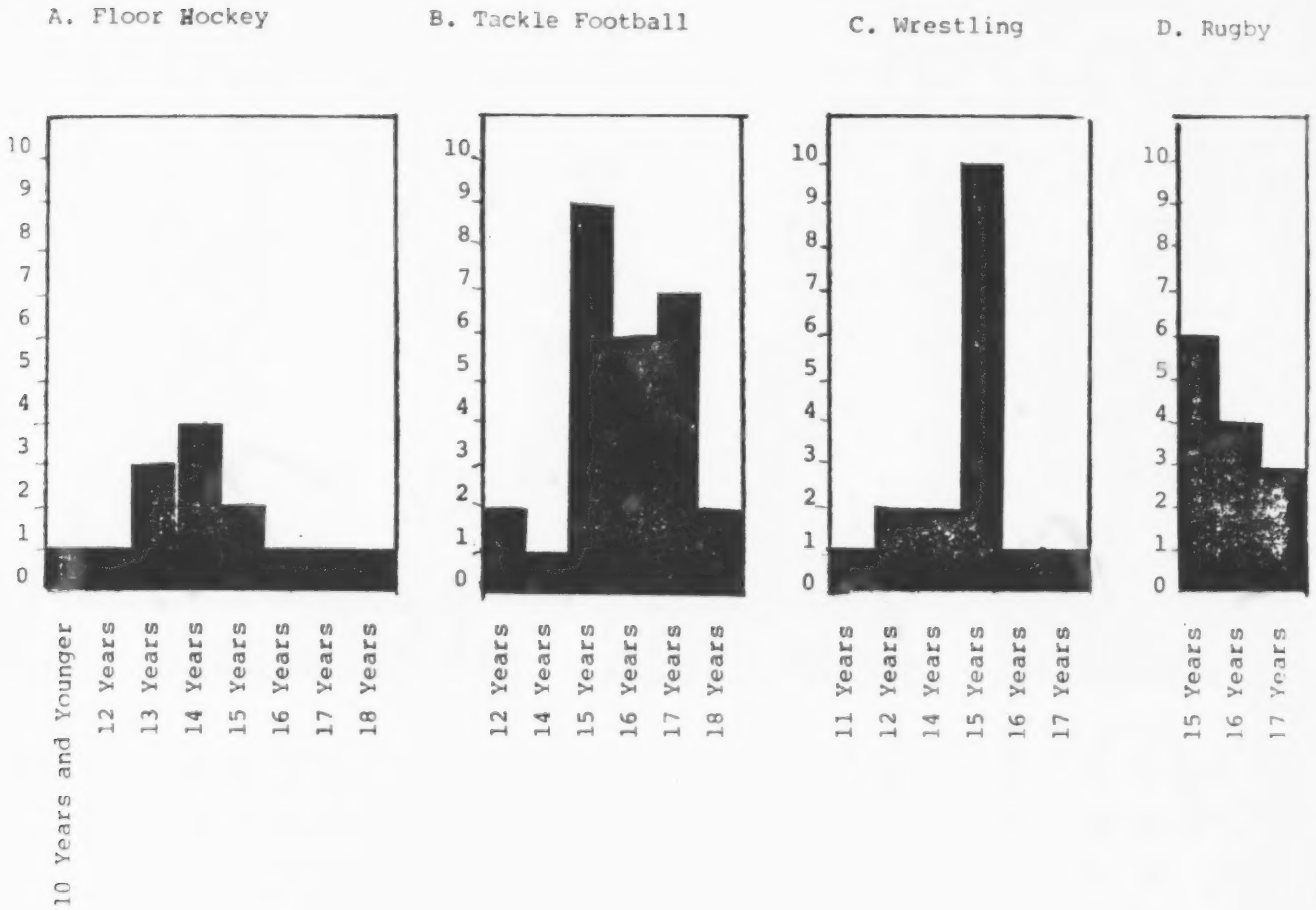


Figure 43.
A. 64% of injuries in Floor Hockey occurred to 13, 14 and 15 year olds.
B. 82% of injuries in Tackle Football occurred to 15, 16 and 17 year olds.
C. 59% of injuries in Wrestling/Self Defense occurred to 15 year olds.
D. 100% of injuries in Rugby occurred to 15, 16 and 17 year olds.

Figure 43 (Continued)

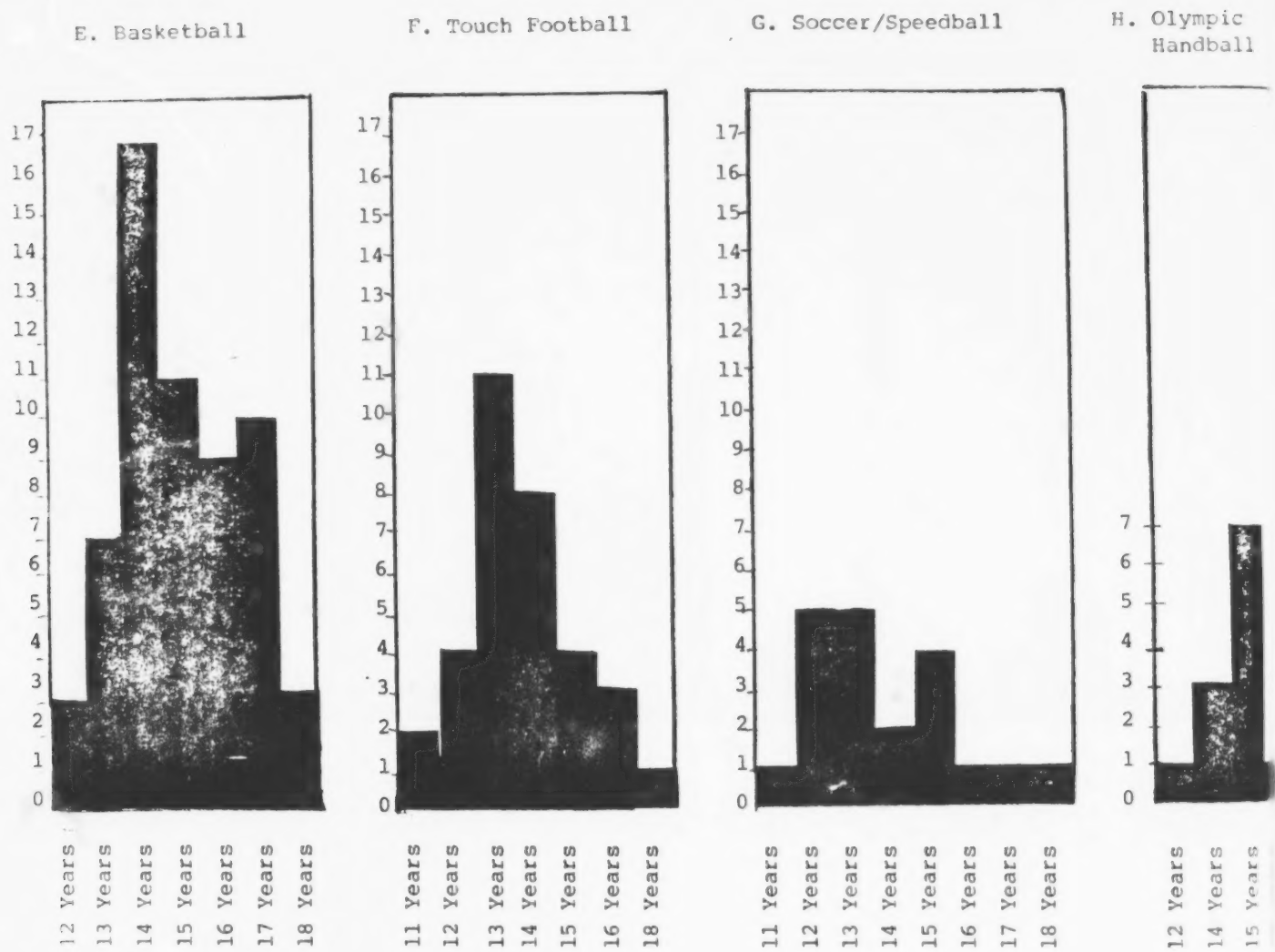


Figure 43.
E. 28% of injuries in Basketball occurred to 14 year olds.
F. 58% of injuries in Touch Football occurred to 13 and 14 year olds.
G. 50% of injuries in Soccer/Speedball occurred to 12 and 13 year olds.
H. 83% of injuries in Olympic Handball occurred to 14 and 15 year olds.

Figure 43 (Continued)

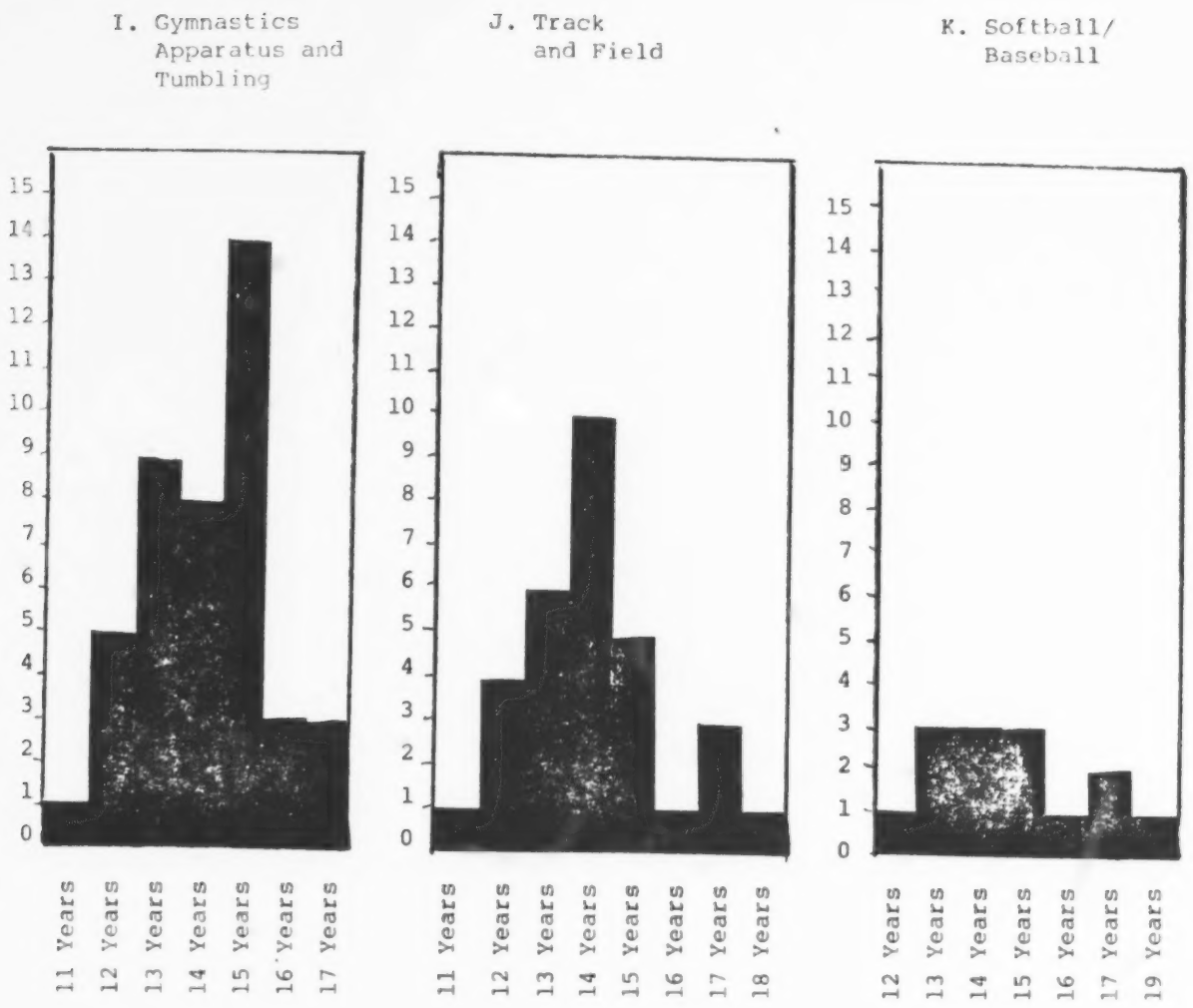


Figure 43.
I. Only 10% of injuries in Gymnastics occurred to individuals older than 15.
J. 32% of injuries in Track and Field occurred to 13 year olds.
K. 64% of injuries in Softball/Baseball occurred to 13, 14 and 15 year olds.

Figure 43 (Continued)

L. Volleyball

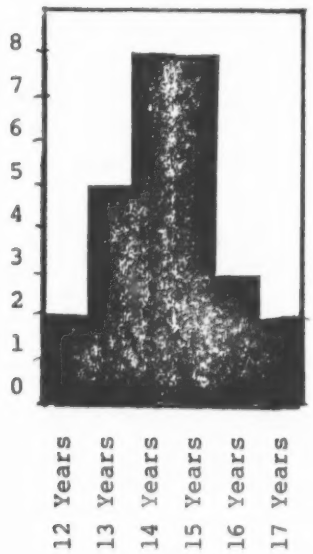


Figure 43.
L. 57% of injuries in Volleyball occurred to 14 and 15 year olds.

Figure 44

Frequency of Sprains as Related to Body Region Injured in Grades 7-12

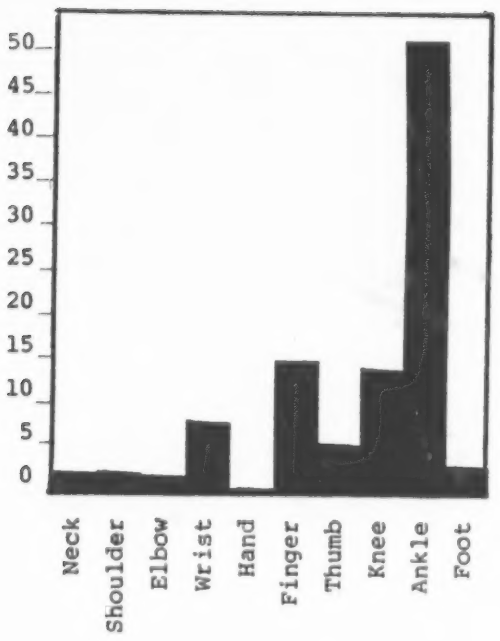


Figure 44. 52% of all sprains occurred to the ankle and foot; 29% to the hand area; and 10% to the knee.

Figure 45

Frequency of Fractures as Related to Body Region Injured in Grades 7-12.

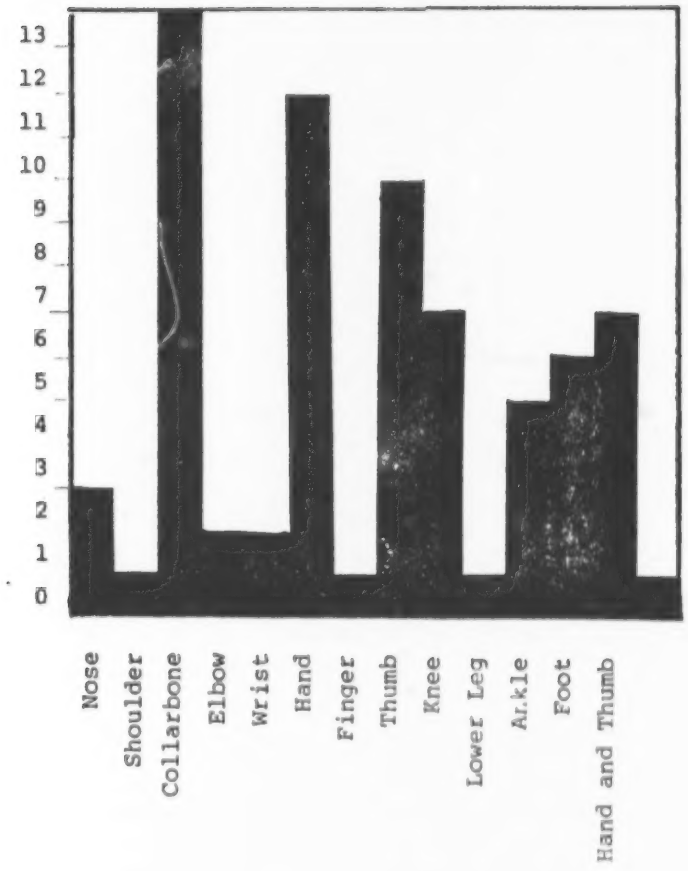


Figure 45. 43% of all fractures occurred to the hand area; 21% to the shoulder and collarbone; 18% to the ankle and foot, and 7% to the lower leg.

Figure 46

Frequency of Open Wounds as Related to Body Region Injured in Grades 7-12

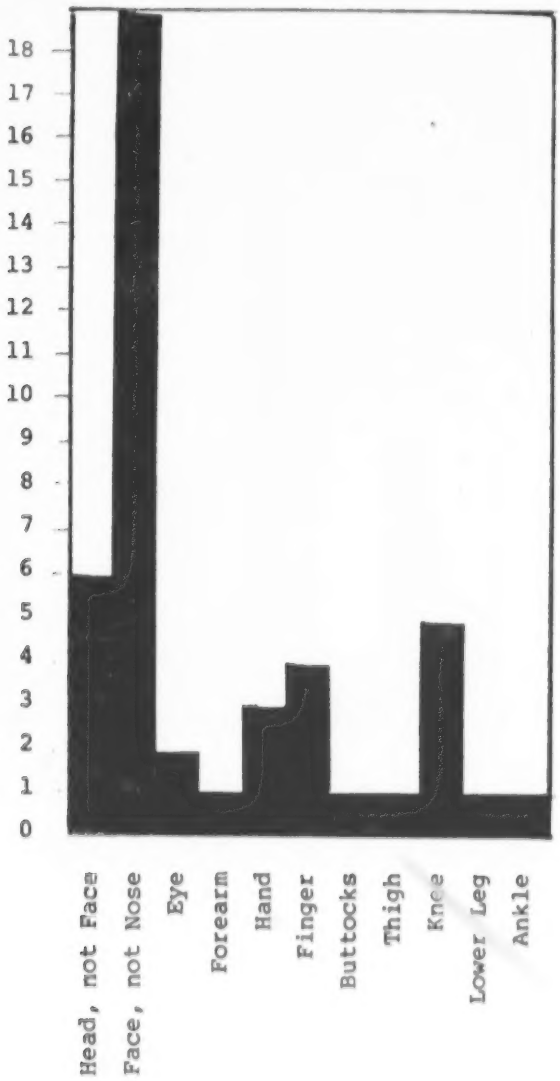


Figure 46. 61% of all open wounds occurred to the head and facial area and 16% occurred to the hand area.

Figure 47

Frequency of Muscle Strains as Related to Body Region Injured in Grades 7-12

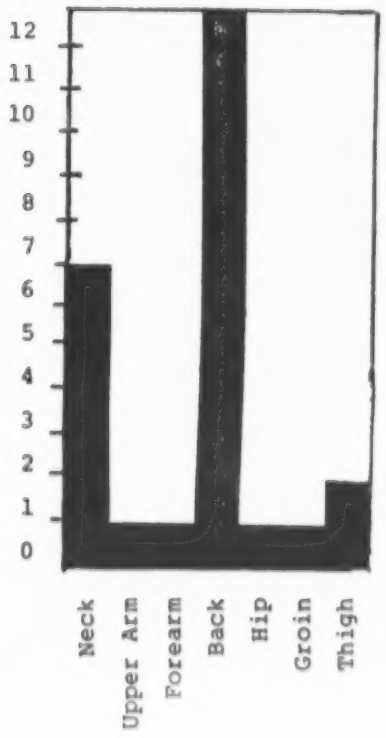


Figure 47. 50% of all muscle strains occurred to the back while 27% occurred to the neck.

Figure 48

Frequency of Dislocations/Separations as Related to Body Region injured in Grades 7-12

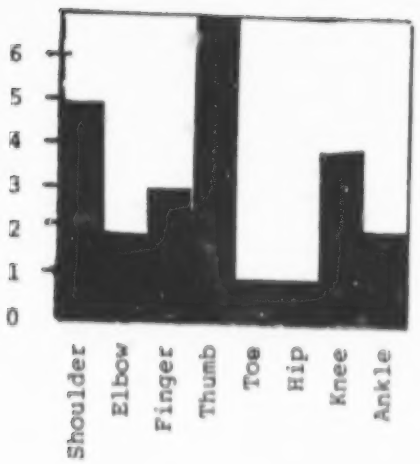


Figure 48. 28% of all dislocations/separations occurred to the thumb; 20% to the shoulder; 16% to the knee; and 12% to the finger.

Figure 49

Frequency of Fractures as Related to Grade in Grades 7-12

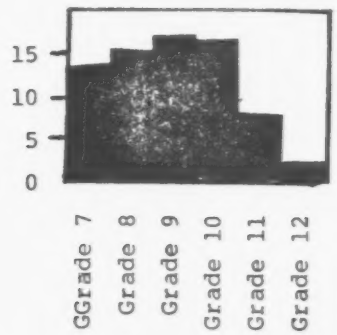


Figure 49. 86% of all fractures occured in Grades 7, 8, 9, and 10.

Figure 50

Frequency of Sprains as Related to Grade in Grades 7-12

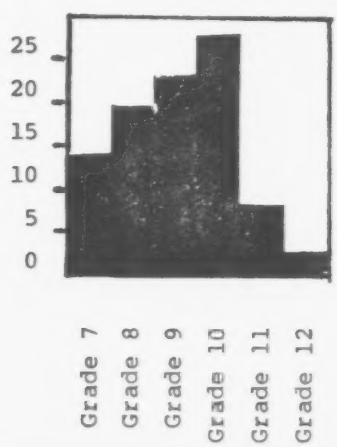


Figure 50. 81% of all sprains occurred in grades 7, 8, 9, and 10.

Figure 51

Frequency of Open Wounds as Related to Grade in Grades 7-12.

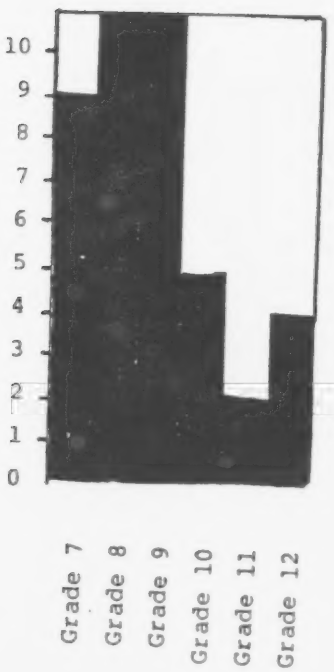


Figure 51. 74% of all open wounds occurred in Grades 7, 8, and 9.

Figure 52

Frequency of Muscle Strains as Related to Grade in Grades 7-12

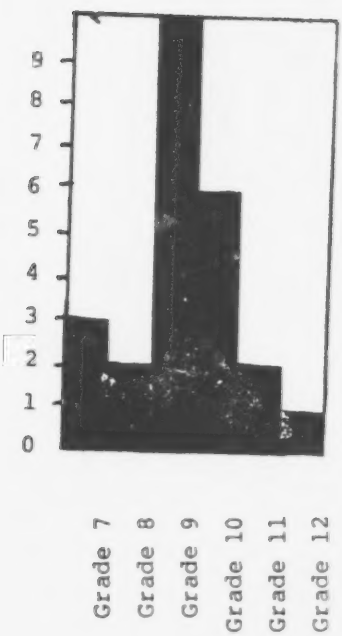


Figure 52. 67% of all muscle strains occurred in Grades 9 and 10.

Figure 53

Frequency of Specific Types of Injuries as Related to Program Phase in Grades 7-12

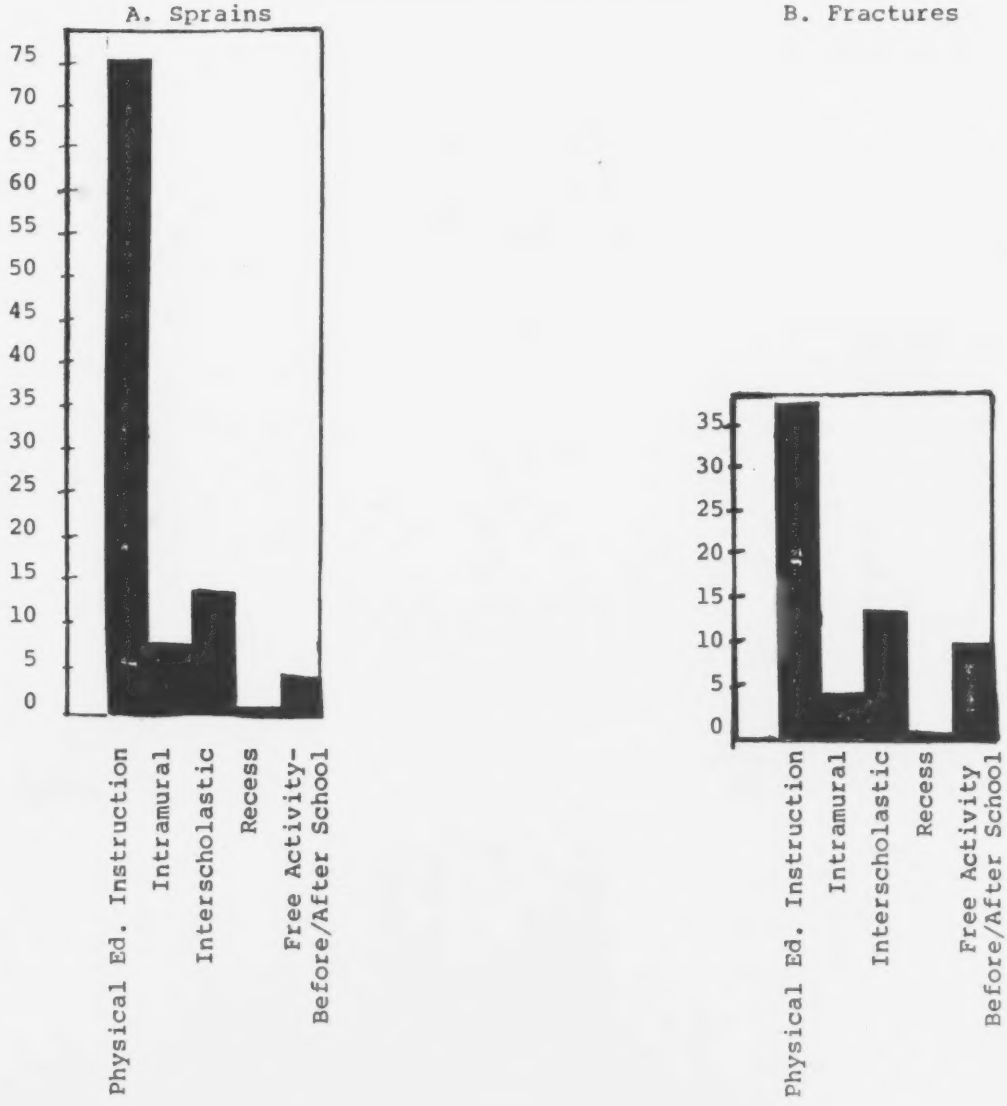


Figure 53.

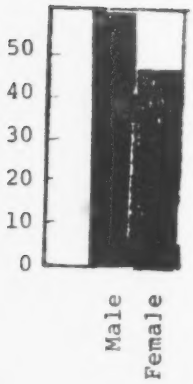
A. 72% of all sprains occurred during physical education instruction while 14% occurred during interscholastic competition.

B. 53% of all fractures occurred during physical education instruction; 21% during interscholastic competition; and 16% during free activity before or after school

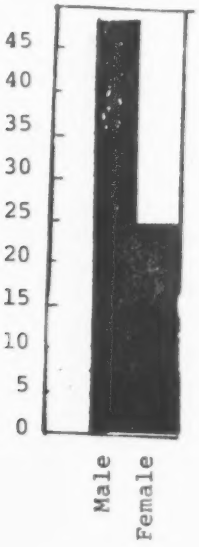
Figure 54

Frequency of Specific Types of Injuries as Related to Sex in Grades 7-12

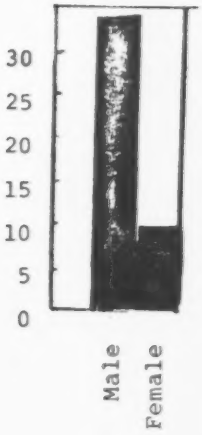
A. Sprains



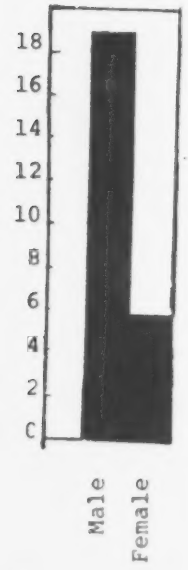
B. Fractures



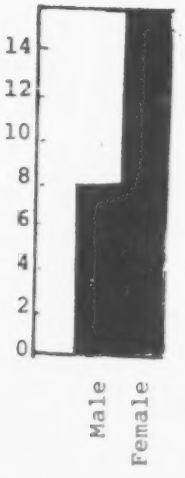
C. Open Wounds



D. Dislocations/ Separations



E. Muscle Strains



F. Bone Bruises

Figure 54.
A. 56% of all sprains occurred to males.
B. 66% of all fractures occurred to males.
C. 77% of all open wounds occurred to males.
D. 76% of all dislocations/separations occurred to males.
E. 33% of all muscle strains occurred to males.
F. 65% of all bone bruises occurred to males.

Figure 55

Frequency of Injury in Selected Activities as Related to Sex for Grades 7-12.

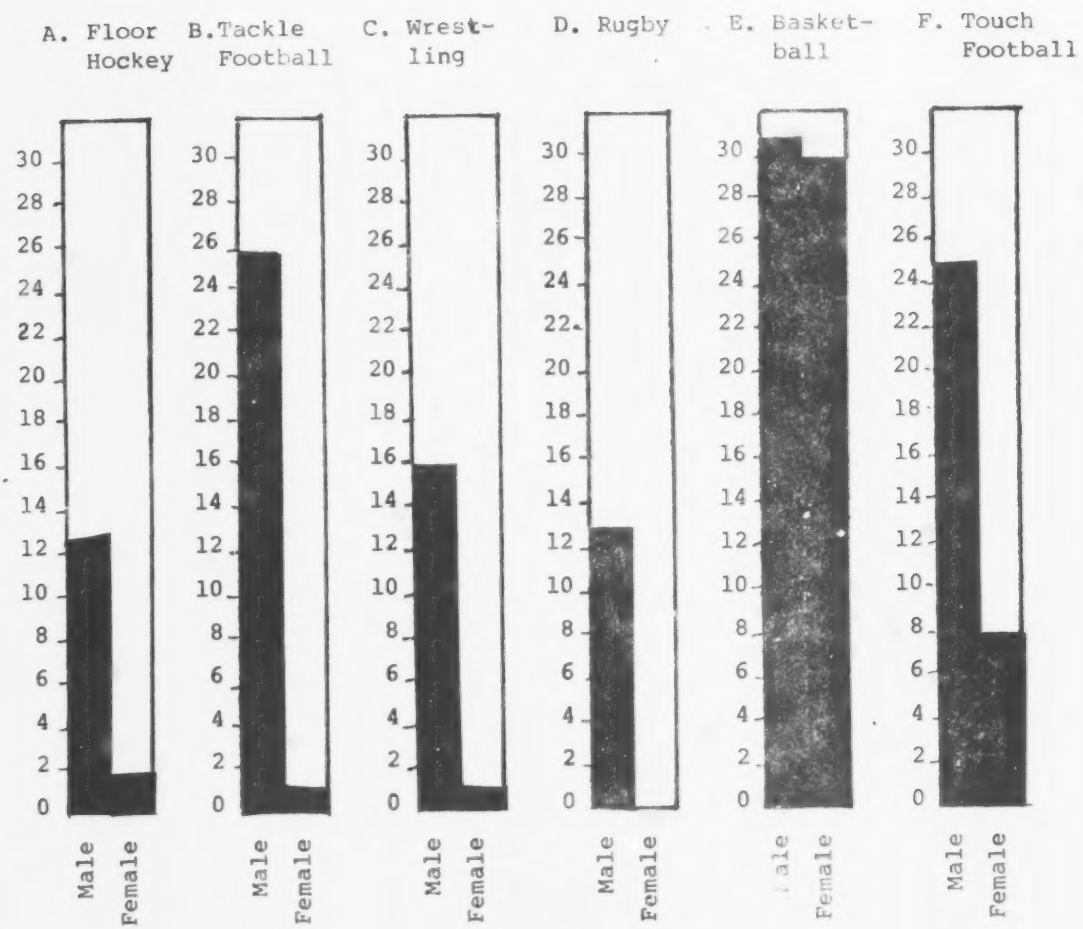


Figure 55 (Continued)

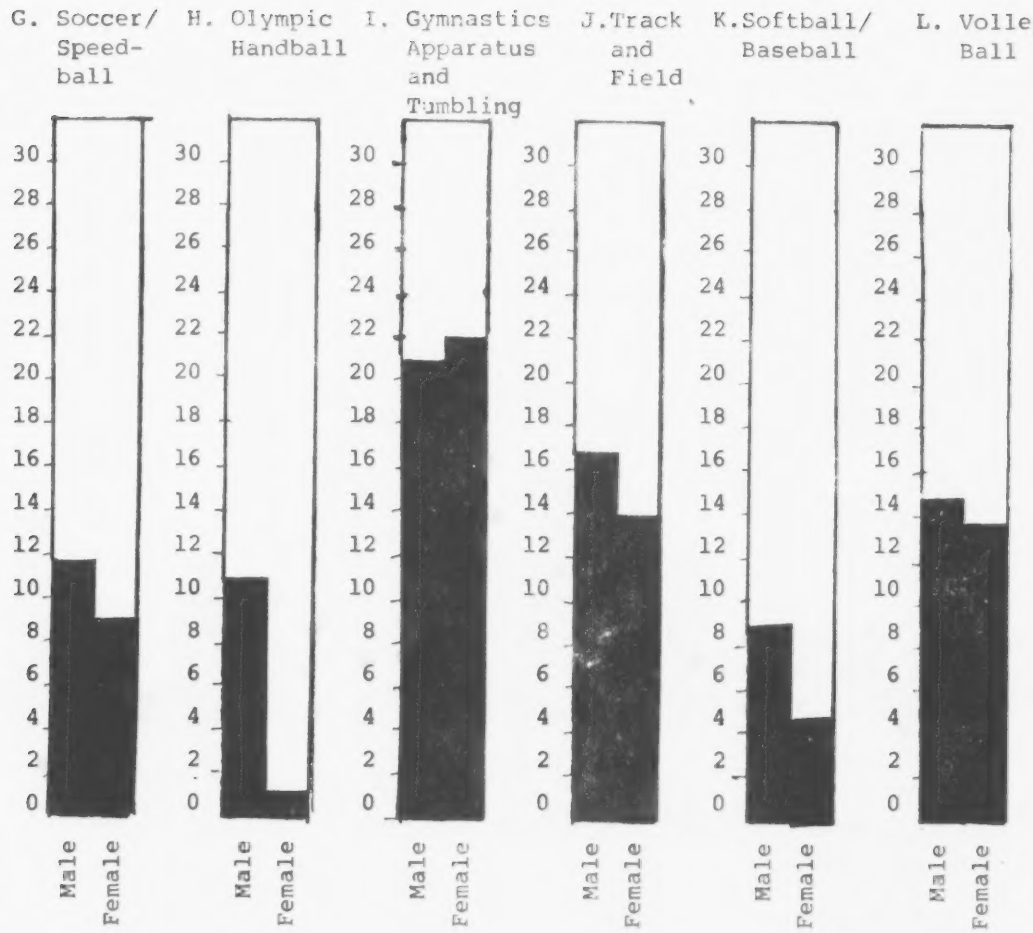


Figure 56

Frequency of Injury in Selected Activities as Related to Type of Injury in Grades 7-12

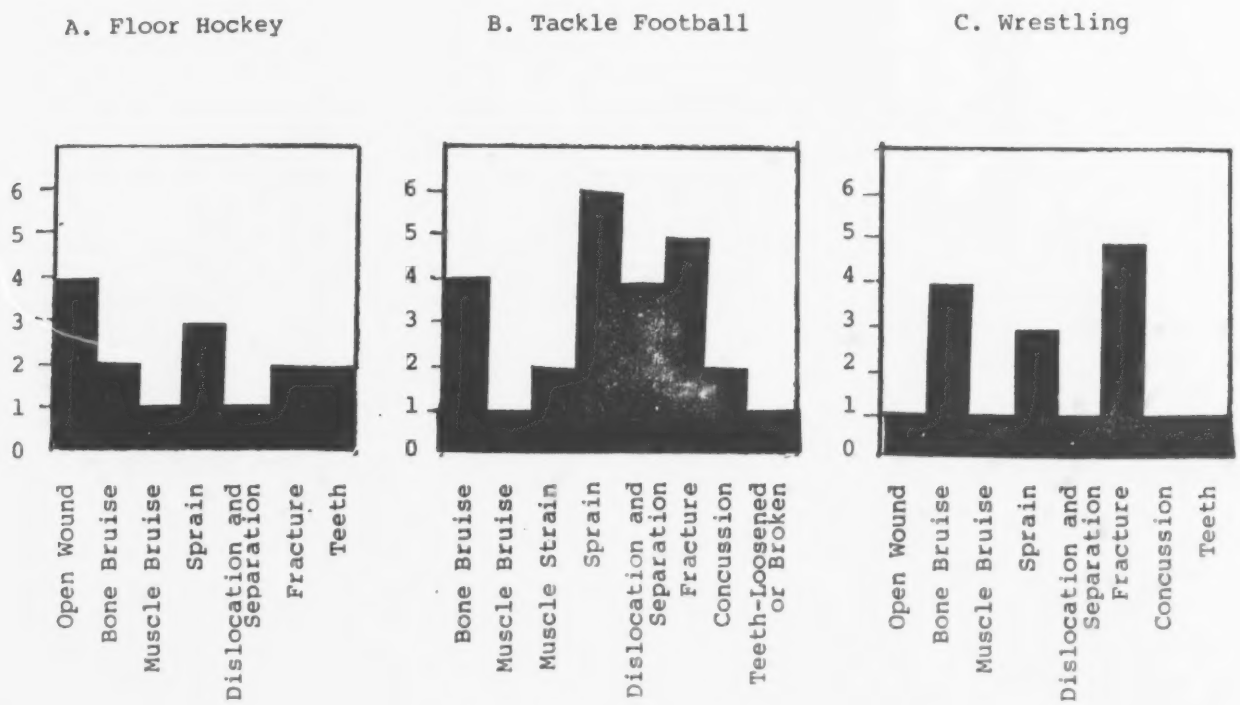
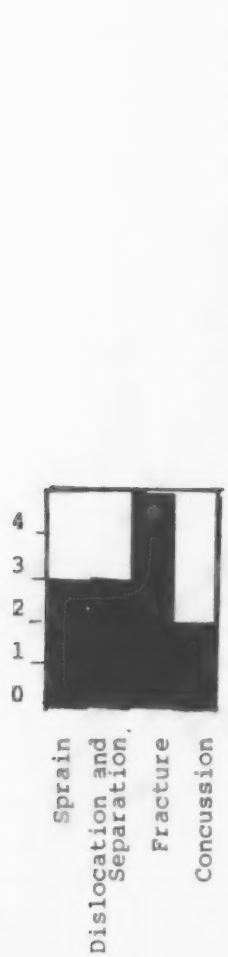


Figure 56.

A. An even distribution of injuries normally associated with contact of some nature was observed in Floor Hockey.
B. 60% of injuries in Tackle Football were sprains (24%), fractures (20%), and dislocations/separations (16%) which are relatively serious injuries.
C. 59% of injuries in Wrestling were fractures (29%), sprains (18%), dislocations/separations (6%), and concussions (6%), which are relatively serious injuries.

Figure 56 (Continued)

D. Rugby



E. Basketball

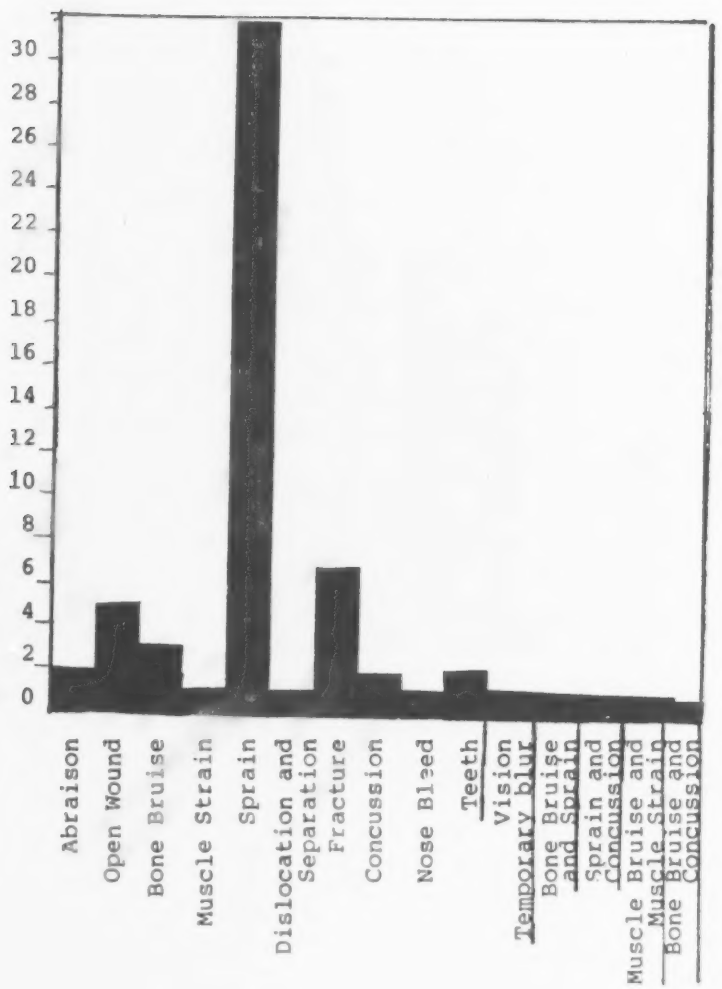
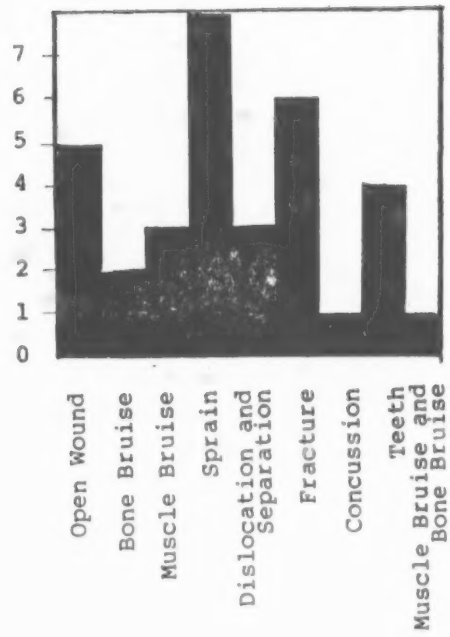


Figure 56.
D. 100% of injuries in Rugby were of a relatively serious nature; fractures (38%), sprains (23%), dislocations/separations (23%) and concussions (16%).
E. 52% of injuries in Basketball were sprains while 12% were fractures.

Figure 56 (Continued)

F. Touch Football



G. Soccer/Speedball

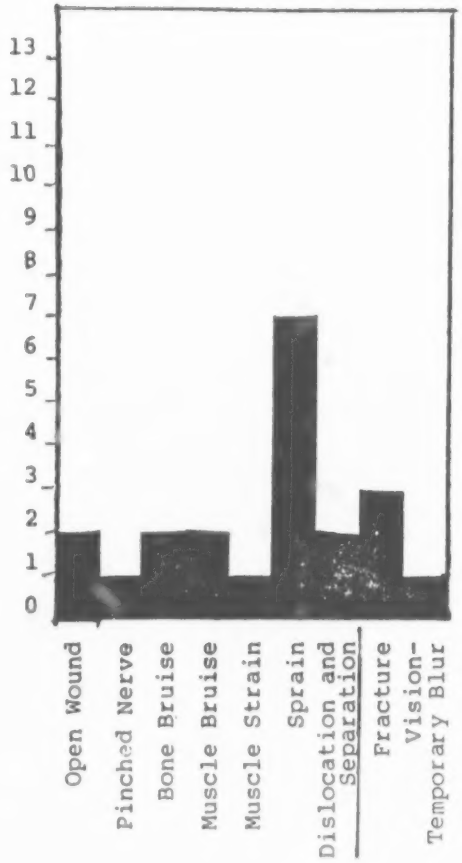


Figure 56.
F. 24% of injuries in Touch Football were sprains, 18% fractures, 15% open wounds and 12% teeth loosened or broken.
G. 21% of injuries in Soccer/Speedball were sprains.

Figure 56 (Continued)

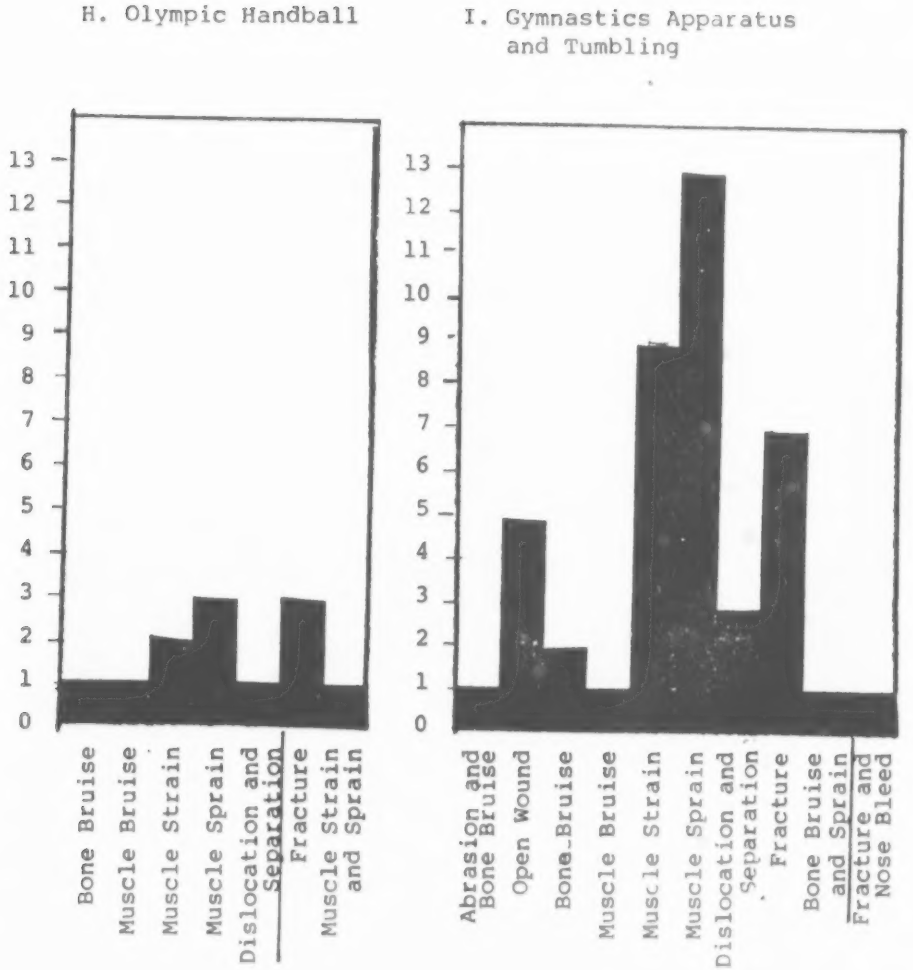


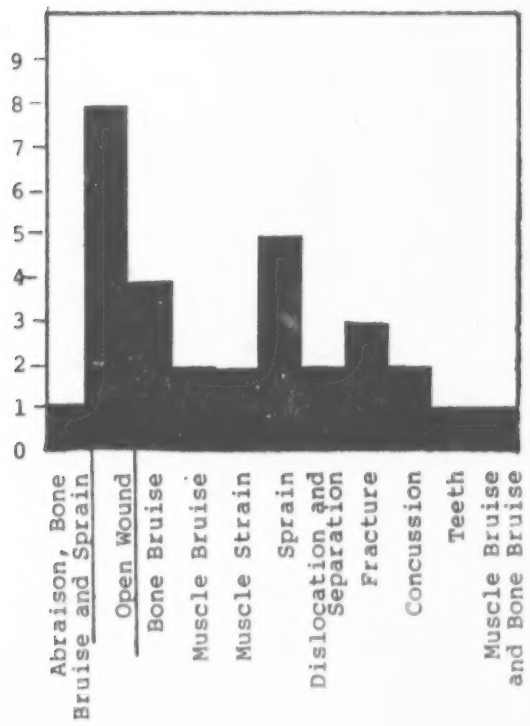
Figure 56.

H. An even distribution of injuries normally associated with contact of some nature was observed in Olympic Handball.

I. 30% of injuries in Gymnastics were sprains, 21% muscle strains and 16% fractures.

Figure 56 (Continued)

J. Track and Field



K. Softball/Baseball

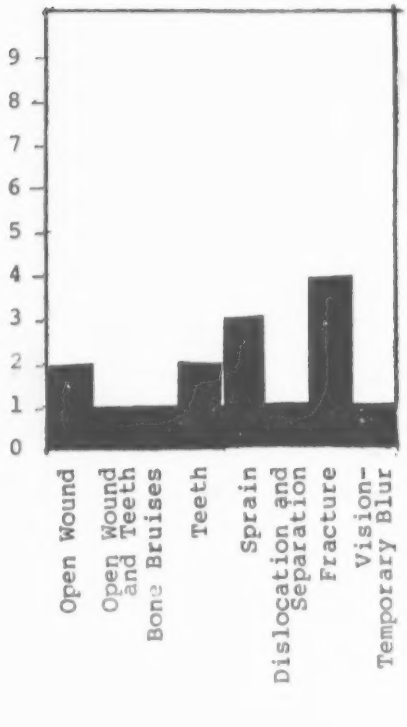


Figure 56.
J. 26% of injuries in Track and Field were open wounds while 16% were sprains.
K. 57% of injuries in Softball/Baseball were of a relatively serious nature; fractures (29%), sprains (21%), and dislocations/separations (7%).

Figure 56 (Continued)

L. Volleyball

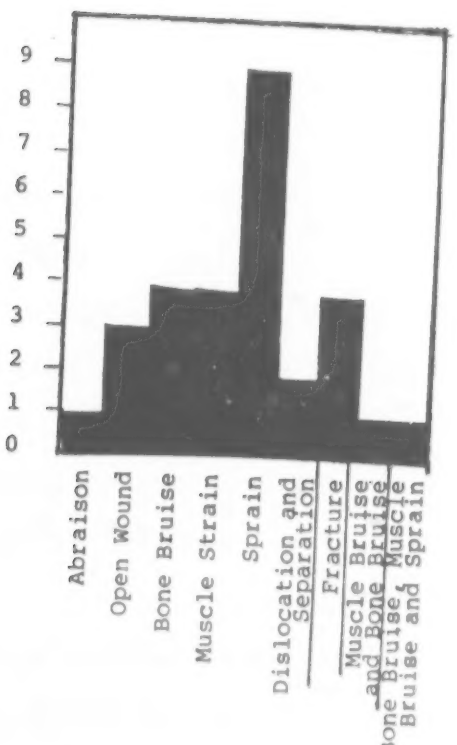


Figure 56.
L. 31% of injuries in Volleyball were sprains.

VIII. SUMMARY OF RESULTS FOR THE SEVENTH TO TWELFTH GRADES

1. A higher incidence of injury was noted in grades seven through ten. This is likely related to the greater number of participation hours in physical activity that students in grades seven through twelve are exposed to as a result of the compulsory nature of physical education in these grades in the province of Alberta.(see Figures 28 and 37, and Table XI). This trend is further supported by Figure 45 which shows that with the exception of tackle football, rugby and basketball, a higher incidence of injury was observed in grades seven through ten for all other activities offered in the physical education curriculum. Tackle football, basketball and rugby are the three major activities in which there is competition between the high schools (grades ten through twelve). For these activites a greater incidence of injury was noted for grades ten through twelve (tackle football - 93 per cent, rugby - 100 per cent, basketball - 51 per cent). As would be expected a greater incidence of injury occurred during interscholastic competition in grades eleven and twelve where physical education is not compulsory. (see Figure 28 and Table XIX).

2. Males incurred 27 per cent more injuries than females. However, if the male orientated contact sports such as tackle football, olympic handball, floor hockey, rugby, wrestling and touch football, in which males incurred 74 per cent more injuries, were eliminated the incidence of injury as related to sex would be of similar magnitude or 53 per cent for males and 47 per cent for females (see Figure 59 and Table VX).

3. The most dangerous time of day for incurring an injury during physical activity was between noon and 1:00 p.m. (see Figure 29 and Table XII). This could possible be related to the pupil/supervisor ratio at this time of day. During physical education instruction and interscholastics the pupil/supervisor ratio is likely less than 35:1, but during intramurals or free activity, which occurs between noon and 1:00 p.m. the ratio is likely much higher than 35:1. When comparing specific activities it was observed that the two most popular intramural and free play activites, touch football and basketball produced their highest incidence of injury during the noon hour. (61 per cent and 21 per cent respectively). Also, participation in softball and track and field, which are popular activites in rural areas had their highest injury frequency during those times of day which correspond with the morning and afternoon recess (10:00 to 11:00 and 2:00 to 3:00) and with the noon hour period. The rate of injury for softball and track and field during these periods was 64 per cent and 61 per cent respectively. (see Figure 44 and Table XX).

4. A high incidence of injury after school hours was noted for tackle football, rugby and basketball (85 per cent, 39 per cent and 15 per cent respectively). This result would be expected since it is at this time of day interscholastic practices and games occur (see Figure 44).

5. The joint regions of the body were the most injured of all body areas, accounting for 54 per cent of all injuries. The head and facial areas were the next most injured region accounting for 22 per cent of all injuries. Of the joint areas, the ankle accounted for 17 per cent of all injuries or 32 per cent of all joint injuries. (see Figure 31 and Table XIV).

6. Sprains, fractures and dislocations were the most frequent types of injury. Sprains accounted for 29 per cent, fractures for 19 per cent and dislocations for 7 per cent of all injuries.
7. A fall or trip for no apparent reason accounted for 21 per cent of all injuries. A blow from an object accounted for 20 per cent and injuries resulting from accidental collisions accounted for 16 per cent of all injuries.
8. There were sixty-four injuries caused by body contact which is considered part of the particular activity or permissable within the rules of that activity. Of these only fourty-four (69 per cent) occurred in activities such as tackle football, floor hockey, ice hockey, olympic handball, wrestling and rugby where body contact is legal and therefore not penalized unless rule infractions occur. The remaining 20 injuries occurred in activities where body contact is penalized according to the rules. These activities include touch football with eight bodily contact injuries and basketball with seven bodily contact injuries (see Table XVIII).
9. Twenty-six injuries or 7 per cent of all injuries resulted from falling off gymnastics equipment. These twenty-six injuries accounted for 51 per cent of all injuries in gymnastics.
10. Most activities had a relatively even distribution of injuries in terms of the type of injuries incurred through participation. However, in basketball the large percentage of sprains (52 per cent) correlates with the 31 per cent of injuries to the ankle and 25 per cent to the hand area. Thus, ankle and finger sprains are the predominant injuries occurring in basketball. Activities in which body contact is part of the activity tended to produce a larger percentage of relatively serious injuries such as sprains, fractures, dislocations/separations and concussions. These activities included floor hockey, tackle football,

rugby, wrestling and olympic handball. The most frequently occurring injury was the sprain (see Figures 32 and Table XV).

IX. SUMMARY OF RESULTS BY ACTIVITY FOR THE SEVENTH TO TWELFTH GRADES

Eight categories of correlational relationship were used in compiling the summary of results by activity for the seventh to twelfth grades. These categories are:

(1) Injury frequency as related to Program Phase (see Figure 34 and Table 17);

(2) Injury frequency as related to grade (see Figure 28 and Table 11);

(3) Injury frequency as related to age (see Figure 27 and Table 10);

(4) Injury frequency as related to sex (see Figure 30 and Table 13);

(5) Injury frequency as related to time of day (see Figure 29 and Table 12);

(6) Injury frequency as related to probable direct cause (see Figure 35 and Table 18);

(7) Injury frequency as related to type of injury (see Figure 32 and Table 15);

(8) Injury frequency as related to body region (see Figure 31 and Table 15).

Information for each activity analyzed is presented in sequence from numbers (1) to (8) as outlined above.

A. Basketball

(1) 48 per cent of injuries occurred during physical education instruction; 26 per cent during interscholastics; 13 per cent during intramurals; and 13 per cent during free play.

(2) 67 per cent of injuries occurred in grades seven throught ten.

(3) 28 per cent of injuries occurred to fourteen year olds.

(4) 51 per cent of injuries occurred to males.

(5) 21 per cent of injuries occurred between noon and 1:00 p.m. while 15 per cent occurred after 6:00 p.m.

(6) 36 per cent of injuries resulted from body contact.

(7) 52 per cent of injuries were sprains, 12 per cent fractures, and 8 per cent open wounds.

(8) 31 per cent of injuries were to the ankle; 29 per cent to the head and facial area; and 25 per cent to the hand area.

B. Floor Hockey

(1) 73 per cent of injuries occurred during physical education instruction while 20 per cent occurred during intramurals.

(2) 93 per cent of injuries occurred in grades seven through ten.

(3) 29 per cent of injuries occurred to fourteen year olds.

(4) 87 per cent of injuries occurred to males.

(5) 27 per cent of injuries occurred between 10:00 and 11:00 a.m. while 27 per cent also occurred between noon and 1:00 p.m.

(6) 67 per cent of injuries resulted from a blow by an object (most likely the stick).

(7) 27 per cent of injuries were open wounds; 20 per cent sprains, and 20 per cent muscle or bone bruises.

(8) 41 per cent of injuries were to the facial area and 20 per cent to the hand.

C. Tackle Football:

(1) 89 per cent of injuries occurred during interscholastics.

(2) 93 per cent of injuries occurred in grades ten through twelve.

(3) 33 per cent of injuries occurred to fifteen year olds.

(4) 96 per cent of injuries occurred to males.

(5) 85 per cent of injuries occurred between 4:00 and 6:00 p.m.

(6) 63 per cent of injuries resulted from normal body contact.

(7) 24 per cent of injuries were sprains, 20 per cent fractures, 19 per cent muscle or bone bruises, and 16 per cent dislocations.

(8) 19 per cent of injuries occurred to the ankle, 15 per cent to the hand area, 11 per cent to the knee, 11 per cent to the shoulder, and 11 per cent to the facial area.

D. Touch Football:

(1) 55 per cent of injuries occurred during physical education instruction, 24 per cent during free play, and 15 per cent during intramurals.

(2) 91 per cent of injuries occurred in grades seven through ten.

(3) 33 per cent of injuries occurred to thirteen year olds.

(4) 76 per cent of injuries occurred to males.

(5) 61 per cent of injuries occurred between noon and 1:00 p.m.

(6) 65 per cent of injuries resulted from some form of body contact.

(7) 24 per cent of injuries were sprains; 18 per cent fractures; 15 per cent open wounds, 15 per cent muscle or bone bruises; and 12 per cent loosened or broken teeth.

(8) 27 per cent of injuries were to the head area; 24 per cent to the hand area; 15 per cent to the knee; 12 per cent to the shoulder; and 9 per cent to the ankle.

E. Rugby:

(1) 62 per cent of injuries occurred during physical education instruction, while the remaining 38 per cent occurred during interscholastics.

(2) 100 per cent of injuries occurred in grades ten through twelve.

(3) 46 per cent of injuries occurred to fifteen year olds.

(4) 100 per cent of injuries occurred to males.

(5) 38 per cent of injuries occurred after school hours.

(6) 69 per cent of injuries resulted from normal body contact.

(7) 38 per cent of injuries were fractures; 23 per cent dislocations; 23 per cent sprains; and 16 per cent concussions.

(8) 38 per cent of injuries were to the hand area while 31 per cent were to the shoulder or collarbone.

F. Wrestling:

(1) 76 per cent of injuries occurred during physical education instruction, while 18 per cent occurred during interscholastics.

(2) 88 per cent of injuries occurred in grades seven through ten.

(3) 59 per cent of injuries occurred to fifteen year olds.

(4) 94 per cent of injuries occurred to males.

(5) Injuries were evenly distributed throughout the day.

(6) 59 per cent of injuries resulted from normal body contact.

(7) 29 per cent of injuries were fractures; 29 per cent muscle or bone bruises; and 18 per cent sprains.

(8) 27 per cent of injuries were to the hand area; 27 per cent to the head and facial area; 20 per cent to the collarbone; and 20 per cent to the elbow.

G. Olympic Handball:

(1) 92 per cent of injuries occurred during physical education instruction.

(2) 100 per cent of injuries occurred in grades nine and ten.

(3) 58 per cent of injuries occurred to fifteen year olds.

(4) 92 per cent of injuries occurred to males.

(5) 84 per cent of injuries occurred before noon.

(6) 33 per cent of injuries resulted from a blow by an object (most likely the ball).

(7) 25 per cent of injuries were sprains; 25 per cent fractures; and 17 per cent muscle or bone bruises.

(8) 23 per cent of injuries were to the hand area.

H. Volleyball:

(1) 64 per cent of injuries occurred during physical education instruction, 14 per cent during intramurals; 11 per cent during interscholastics; and 11 per cent during free play.

(2) 82 per cent of injuries occurred in grades seven through ten.

(3) 57 per cent on injuries occurred to fourteen and fifteen year olds.

(4) 52 per cent of injuries occurred to males.

(5) 41 per cent of injuries occurred between 9:00 a.m. and 11:00 a.m.

(6) 39 per cent of injuries resulted from a blow by an object (likely the ball).

(7) 31 per cent of injuries were sprains; 14 per cent fractures; 14 per cent muscle strains; and 10 per cent open wounds.

(8) 38 per cent of injuries were to the hand area while 24 per cent were to the foot and ankle.

I. Soccer/Speedball:

(1) 60 per cent of injuries occurred during physical education instruction; 20 per cent during free play; and 15 per cent during intramurals.

(2) 85 per cent of injuries occurred in grades seven through nine.

(3) 50 per cent of injuries occurred to twelve and thirteen year olds.

(4) 57 per cent of injuries occurred to males.

(5) 67 per cent of injuries occurred between 10:00 a.m. and 1:00 p.m.

(6) 33 per cent of injuries resulted from accidental collision.

(7) 21 per cent of injuries were sprains; 19 per cent muscle or bone bruises; 14 per cent fractures; and 10 per cent dislocations.

(8) 28 per cent of injuries were to the foot and ankle; 19 per cent to the knee; 19 per cent to the hand; and 19 per cent to the facial area.

J. Softball/Baseball:

(1) 43 per cent of injuries occurred during physical education instruction; 29 per cent during intramurals; and 21 per cent during free play.

(2) 85 per cent of injuries occurred in grades seven through nine.

(3) 65 per cent of injuries occurred to thirteen, fourteen and fifteen year olds.

(4) 64 per cent of injuries occurred to males.

(5) 64 per cent of injuries occurred between 10:00 a.m. and 11:00 a.m.; noon - 1:00 p.m.; and 2:00 - 3:00 p.m.

(6) 50 per cent of injuries resulted from a blow by an object (likely the ball or bat).

(7) 29 per cent of injuries were fractures; 21 per cent sprains; 21 per cent open wounds; and 14 per cent teeth loosened or broken.

(8) 38 per cent of injuries were to the head and facial area; 21 per cent to the hand area; and 21 per cent to the ankle.

K. Gymnastics:

(1) 84 per cent of injuries occurred during physical education instruction and 12 per cent during interscholastics.

(2) 95 per cent of injuries occurred in grades seven through ten.

(3) 33 per cent of injuries occurred in fifteen year olds.

(4) 49 per cent of injuries occurred to males.

(5) 23 per cent of injuries occurred between 11:00 a.m. and noon.

(6) 51 per cent of injuries resulted from falling off gymnastics equipment.

(7) 30 per cent of injuries were sprains; 21 per cent muscle strains; 16 per cent fractures; and 12 per cent open wounds.

(8) 23 per cent of injuries were to the head and facial area; 21 per cent to the hand area; 21 per cent to the ankle; and 14 per cent to the back.

L. Track and Field:

(1) 71 per cent of injuries occurred during physical education instruction and 19 per cent during interscholastics.

(2) 90 per cent of injuries occurred in grades seven through ten.

(3) 48 per cent of injuries occurred to fourteen year olds.

(4) 55 per cent of injuries occurred to males.

(5) 61 per cent of injuries occurred between 10:00 - 11:00 a.m., noon - 1:00 p.m., and 2:00 - 3:00 p.m.

(6) 37 per cent of injuries resulted from falling or tripping.

(7) 26 per cent of injuries were open wounds; 19 per cent muscle or bone bruises; 16 per cent sprains; and 10 per cent fractures.

(8) 23 per cent of injuries were to the foot and ankle; 19 per cent to the hand area; 19 per cent to the head and facial area; and 13 per cent to the knee.

X. RECOMMENDATIONS FOR THE SEVENTH TO TWELFTH GRADE POPULATION

1. The number of supervisors on duty during the lunch period, before school and after school should be increased. This would reduce the pupil/supervisor ratio at these times which would in turn reduce the high incidence of injury which occurs during these basically unstructured periods of the school day.
2. An individual knowledgeable in emergency care and first aid procedures should be present at all interscholastic practices as well as games. If such an individual is not available it is recommended that coaches receive certification from either the Red Cross or the St. John's first aid organizations. This recommendation is based on the finding that 85 per cent of all injuries in tackle football occurred between 4:00 and 6:00 p.m.
3. All physical education instructors should receive certification from a first-aid instuctional organization as a minimum requirement and preferably have successfully completed a course in athletic training as a pre-requisite for employment. This recommendation is based on the finding that 55 per cent of all injuries were of a relatively serious nature (sprains - 29 per cent, fractures - 19 per cent, dislocations - 7 per cent), and that 62 per cent of all injuries related to physical activity occurred during physical education instruction.
4. A first aid kit which has an adequate supply of sterile bandages, splints of different widths, adhesive tape of different widths, chemical ice packs, first aid cream, cleaning agents, butterfly bandaids, tensor bandages, triangular bandages, and underwrap as well as oral screw, tongue forceps and surgical scissors should be in a readily accessible spot throughout the school day.

5. That a study be commissioned which would determine the injury risk factor for all activities offered in the physical education curriculum in the province of Alberta.
6. That the use of protective equipment by participants be made mandatory for activities such as touch football, floor hockey, and softball/baseball during physical education instructional periods as well as intramurals and interscholastic participation. Since 41 per cent of all injuries in floor hockey were to the facial area and 20 per cent to the hand area the use of helmets and gloves should be mandatory for this activity. Also, since 27 per cent of all injuries in touch football were to the head area the use of foam helmets should be mandatory for this activity. Finally, since 38 per cent of all injuries in softball/baseball were to the head and facial area the use of helmets should be mandatory for this activity.
7. That competent officials be trained to enforce the rules in activities such as basketball and touch football where bodily contact is penalized according to the rules. These officials should be present during games in physical education classes and intramurals as well as during interscholastics. This recommendation is based on our finding that eight injuries in touch football and seven in basketball occurred as a result of some bodily contact other than accidental collision.
8. That whenever a student is working on gymnastic apparatus an adequate number of qualified spotters be present. Also, students should not be required to perform manoevers on gymnastics apparatus for which they have insufficient strength. This recommendation is based on the finding that twenty six or 51 per cent of all gymnastics injuries resulted from falling off gymnastics equipment.

9. That the use of flags rather than the traditional two handed touch method be mandatory for touch football. This recommendation is based on the finding that 65 per cent of all injuries in touch football resulted from bodily contact of some form.
10. That a greater emphasis be placed on proper tackling techniques in rugby. Tackling techniques are quite different in rugby than football due to the lack of protective equipment.
11. That a rule change be made in volleyball which prohibits a player from crossing the center line; especially during spiking and blocking. This recommendation is based on our finding that 24 per cent of all injuries in volleyball were to the foot and ankle.

XI. GENERAL RECOMMENDATIONS

1. That a booklet on the prevention and care of injuries in games, sports, athletics and physical activities be developed and distributed to teachers and coaches in the province of Alberta. Information bulletins on safety practices, for general and specific activites should be made available through the provincial physical education supervisors.
2. That all schools in the province be encouraged to implement an accident reporting and investigation system as soon as practically feasible. Data obtained from such systems could be used to prepare periodic summaries which could be utilized to ascertain or determine trends in the incidence, nature and causes of injuries in comparing past accident information with present statistics in local school districts as well as in the province as a whole.
3. That a provincial school safety coordinator or supervisor be appointed. This appointee would analyze sports injury statistics annually, initiate accident preventative programs through the schools in the province and develop a library of resource materials for use by teachers and coaches.
4. Coaches and physical education instructors should be cognizant of pertinent accident information relating to activites, be able to institute appropriate accident prevention procedures for activites, and be qualified to use first aid procedures.

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APPENDIX A

ALBERTA SCHOOL ACCIDENT REPORT FORM

№ 9321
1564

ALBERTA SCHOOL ACCIDENT REPORT FORM

97

(Please TYPE information—send PINK COPY to Dr. A. W. McCalla, Faculty of Physical Education, University of Alberta, Edmonton, Alberta T6G 2H9. Retain WHITE COPY in school.)

School

Name of Pupil

Date of Accident

Date Report Filed

Does pupil have supplemental school accident insurance?

Type

Did accident require medical and/or dental attention?

Brief description of accident

INDICATE THE *ONE* (OR MORE) APPROPRIATE STATEMENT(S) FROM *EACH* OF THE FOLLOWING SECTIONS

A SEX

( ) 6. Male
( ) 7. Female

B AGE

( ) 8. six or younger
( ) 9. seven
( )10. eight
( )11. nine
( )12. ten
( )13. eleven
( )14. twelve
( )15. thirteen
( )16. fourteen
( )17. fifteen
( )18. sixteen
( )19. seventeen
( )20. eighteen
( )21. nineteen
( )22. twenty plus

C GRADE

( )23. kindergarten
( )24. one
( )25. two
( )26. three
( )27. four
( )28. five
( )29. six
( )30. seven
( )31. eight
( )32. nine
( )33. ten
( )34. eleven
( )35. twelve
( )36. special education
( )37. staff
( )38. evening credit programs
( )39. summer extension classes
( )40. other

D TIME OF DAY

( )41. before 8:00 a.m.
( )42. 8:00 - 8:59
( )43. 9:00 - 9:59
( )44. 10:00 - 10:59
( )45. 11:00 - 11:59
( )46. 12:00 - 12:59 p.m.
( )47. 1:00 - 1:59
( )48. 2:00 - 2:59
( )49. 3:00 - 3:59
( )50. 4:00 - 4:59
( )51. 5:00 - 5:59
( )52. after 6:00

E BODY REGION(S) INJURED

( )53. head other than face
( )54. face other than nose, teeth & eyes
( )55. nose
( )56. teeth
( )57. eye
( )58. neck
( )59. shoulder
( )60. collarbone
( )61. upper arm
( )62. elbow
( )63. forearm
( )64. wrist
( )65. hand
( )66. finger
( )67. thumb
( )68. chest
( )69. abdomen
( )70. back
( )71. buttocks
( )72. hip
( )73. groin
( )74. thigh
( )75. knee
( )76. lower leg
( )77. ankle
( )78. foot

F TYPE(S) OF INJURY

( ) 4. abrasion—scrape
( ) 5. laceration/incision/puncture—an open wound
( ) 6. burn
( ) 7. bone bruise—swelling and/or discoloration of bony area
( ) 8. muscle bruise—swelling and/or discoloration of muscular area
( ) 9. muscle strain (pull or tear)—due to use rather than blow
( )10. sprain—twisting or moving of a joint beyond normal range
( )11. dislocation/separation—deformity of a joint
( )12. fracture
( )13. concussion—temporary loss of orientation or unconsciousness
( )14. nose bleed
( )15. teeth—loosened or broken
( ) x. other

G FACILITY AREA WHERE ACCIDENT OCCURRED

( )16. gymnasium
( )17. playing field or tarmac
( )18. classroom, laboratory or library
( )19. permanent play equipment on school property (eg. Canadian Climber or Jungle Gym)
( )20. moving between classes, entering or leaving school building
( )21. rink
( )22. in transit to or from school (on side walks, roads etc.)
( )23. locker room, shower room or washrooms
( )24. off school property but during school conducted activity (field trip, school camp, athletic activity)

H PROBABLE DIRECT CAUSE

( )25. blow delivered by an object (ball, bat, etc.)
( )26. fall or trip not due to any observed external factor
( )27. fall or loss of balance where gymnastic apparatus concerned
( )28. obstruction on playing area (object or spectator)
( )29. accidental collision between participants
( )30. body contact (not considered a collision) in the normal course of an activity
( )31. strain or overexertion
( )32. carelessness on part of pupil
( )33. no clear or apparent cause
( ) x. other

I PROGRAM PHASE

( )34. physical education instruction (curricular program)
( )35. intramural, house league or club activity
( )36. interscholastic activity (game or practice)
( )37. recess
( )38. free activity before or after school, noon hour play
( )39. classroom, laboratory, or library instruction
( )40. extracurricular program not concerned with athletics

J COMPLETE SECTION J—if in elementary school and accident occurred in free play, intramural or physical education instruction.

ACTIVITY (elementary)

( )41. free play—spontaneous activity at noon or recess
( )42. organized activity—intramurals at noon or recess
( )43. dance lessons
( )44. games lesson
( )45. gymnastics lesson
( ) x. other

K COMPLETE SECTION K—if in Junior or Senior High School and accident occurred in intramural, interschool or curricular physical education program.

ACTIVITY (junior and senior high)

( )46. aquatics
( )47. archery
( )48. basketball
( )49. bordenball
( )50. canoeing or rowing
( )51. curling
( )52. dance
( )53. field hockey
( )54. floor hockey
( )55. football (tackle)
( )56. football (flag, touch)
( )57. golf
( )58. gymnastics (apparatus)
( )59. gymnastics (free exercise, tumbling)
( )60. handball (Olympic, European, team)
( )61. horsemanship (riding)
( )62. hunter training
( )63. ice hockey
( )64. ice sports (other)
( )65. racquet games
( )66. riflery
( )67. rugby
( )68. soccer or speedball
( )69. softball or baseball
( )70. track & field or cross country
( )71. volleyball
( )72. wrestling and personal defence
( )73. miscellaneous indoor activities (specify)
( )74. miscellaneous outdoor activities (specify)

Names Principal (Print Name) Witness(es)

Teacher (Print Name)

APPENDIX B

INSTRUCTIONAL PAMPHLET FOR THE ALBERTA SCHOOLS ACCIDENT REPORTING PROJECT

ALBERTA PHYSICAL EDUCATION ACCIDENT REPORTING

Thousands of Alberta students participate annually in a variety of sports and physical activities in school physical education classes, school recreational clubs, as well as in the intramural and extramural programs. Physical activity, by its very nature, occasionally produces minor and infrequently more serious types of physical injury. While the element of risk inherent in physical activity is seldom a determining factor in an individual's participation, definite steps may be taken to effectively reduce the incidence of injury. Information is the key to the development of preventative measures.

Several advantages adhere to a relatively objective as compared to a subjective means of reporting accidents. A few of these are briefly summarized as follows:

1. The significant details of an accident may be rapidly and accurately described.
2. The terminology used to report accidents is standardized.
3. All accident reports are comparable and are amenable to arithmetic manipulation or treatment by computer. Recommendations for the reduction of accidents may be made subsequent to the finding of possible cause and effect relationships.

The form to be used in this study is comprised of several categories of information which describe the exact nature of the injury and circumstances surrounding it. Each category or section is comprised of several alternatives. While the number of alternatives per category could undoubtedly be expanded to cover every eventuality, only those which apply to the majority of cases are included. Unless otherwise specified, only one alternative or factor is indicated in each section. Where the possibility exists that the best explanation may be a factor which is not given, space is provided to complete the section.

The following information is required when reporting any type of accident.

A. Sex
B. Age to the nearest year
C. Grade
D. Time of day
E. Body region(s) injured
F. Type(s) of injury
G. Facility area
H. Probable direct cause
I. Program phase
J. Elementary level activities
K. Activities common to the Junior and Senior high school

WHAT IS A REPORTABLE INJURY?

1. Any injury receiving medical or first aid attention and which results in the student missing *any* school classes or practice sessions.
2. Any dental injury which should receive professional attention.
3. Any injury which leads to a cessation of an athlete's customary participation in a sports event or in participation in activity the day following the injury.

HOW DO YOU REPORT THE INJURY?

The Alberta School Accident Report form provides a simple yet reasonably exhaustive check list system for reporting and recording the nature and type of injury. In some cases the form may not be explicit enough to encompass the injury. When this is the case, space is available to write in the nature of the accident.

The forms are self-duplicating and you simply fill out the *white* page. Retain the white copy for your files and mail the *pink* to:

Dr. Steve Mendryk
Department of Physical Education
The University of Alberta
Edmonton, Alberta
T6G 2H9.

APPENDIX C

SUMMARY SHEET OF ALBERTA SCHOOL AND STUDY POPULATIONS, INJURY TOTALS AND RATE OF INJURY FOR STUDY POPULATIONS

ALBERTA SCHOOL AND STUDY POPULATIONS, INJURY TOTALS AND RATE OF INJURY FOR STUDY POPULATIONS

TOTAL NUMBER OF STUDENTS IN ALBERTA SCHOOLS AT SEPTEMBER 20, 1975

	MALE	%	FEMALES	%	TOTAL
(a) 1-6	105,929	51.5	99,621	48.5	205,550
(b) 7-12	109,667	50.7	106,568	49.3	216,235
(c) TOTAL	215,596	51.1	206,189	48.9	421,785

* Add 27,033 E.C.S. children (Split by sex not available; number does not include Indian children).

TOTAL NUMBER OF STUDENTS IN ALBERTA SCHOOLS ACCIDENT REPORT STUDY

	MALE	%	FEMALES	%	TOTAL
(a) 1-6	11,065	51.4	10,473	48.6	21,538
(b) 7-12	9,621	50.5	9,402	49.5	19,023
(c) TOTAL	20,686	51.0	19,875	49.0	40,561

TOTAL NUMBER OF INJURIES REPORTED IN SCHOOLS INVOLVED IN ALBERTA SCHOOLS ACCIDENT REPORT STUDY

	MALE	%	FEMALES	%	TOTAL
(a) 1-6	138	63.0	81	37.0	219
(b) 7-12	241	63.0	139	37.0	380
(c) TOTAL	379	63.0	220	37.0	599

PERCENTAGE OF STUDENTS INJURED FROM TOTAL POPULATION OF SCHOOLS INVOLVED IN ALBERTA SCHOOLS ACCIDENT REPORT STUDY

	MALE	%	FEMALES	%	TOTAL
(a) K-6	1.25		0.77		1.01
(b) 7-12	2.51		1.47		1.99
(c) TOTAL	1.84		1.11		1.48

TOTAL NUMBER OF INJURIES EXPECTED IN ALBERTA SCHOOLS AS EXTRAPOLATED FROM PERCENTAGE OF STUDENTS INJURED IN ALBERTA SCHOOLS ACCIDENT REPORT PROJECT

	MALE	FEMALE	TOTAL
(a) K-6	1,493	871	2,364
(b) 7-12	2,753	1,567	4,320
(c) TOTAL	4,246	2,438	6,684

APPENDIX D

TABLES USED FOR COMPILING HISTOGRAM FIGURES FOR THE KINDERGARTEN TO SIXTH GRADE POPULATIONS

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TABLE 1

PROBABLE DIRECT CAUSE OF INJURY
AS RELATED TO THE FREQUENCY
OF INJURIES IN SPECIFIC
ACTIVITIES FOR GRADES K to 6

Probable Direct Cause	Activity						
	Fee Play - noon or recess	Organized noon Activity recess	Dance Lessons	Games Lessons	Gymnastics Lessons	Free Play - before or after school	TOTALS
Blow by object	19	2		9		4	34
Fall or trip not due to any observed external factor	35	1	1	14	3	1	55
Fall or loss of balance on gymnastic apparatus	12			3	10	1	26
Objstruction on playing area	9				1		10
Accidental collision between participants	28	2		12	1	3	46
Body contact in normal course of activity	4	3		3		1	11
Strain or overexertion	1	1					2
Carelessness on part of pupil	17			5	2		24
No clear or apparent cause	3			3	1		7
Fighting	3					1	4
TOTALS	131	9	1	49	18	11	219

TABLE 11

FREQUENCY OF INJURY FOR
SPECIFIC ACTIVITIES AS
RELATED TO SEX FOR GRADES K to 6

Activity	Sex				
	Male	Percentage	Female	Percentage	TOTALS
Free Play - Noon or Recess	89	68	42	32	131
Organized Activity Noon Recess	4	44	5	56	9
Dance Lessons			1	100	1
Games Lessons	28	57	21	43	49
Gymnastic Lessons	9	50	9	50	18
Free Play - Before or After School	8	73	3	27	11
TOTALS	138	-	81	-	219

TABLE III

FREQUENCY OF INJURY FOR SPECIFIC ACTIVITIES AS RELATED TO TYPE OF INJURY FOR GRADES K to 6

TYPE OF INJURY	ACTIVITY						
	Free Play noon or recess	Organized Activity Noon or recess	Dance Lessons	Games Lessons	Gymnastics Lessons	Free Play before or after school	TOTALS
Abrasion	9			1	1		11
Open Wound	32			10	1	2	45
Pinched Nerve							
Bone Bruise	17	1		10	5	2	35
Muscle Bruise	4			1	1		6
Muscle Strain				1			1
Sprain	14	3		8	8	1	34
Dislocation/Separation							-
Fracture	18	3		6		1	28
Concussion	8			3	1		12
Nose Bleed	1		1				2
Teeth-Loosened or Broken	17	1		7	1	2	28
Temporary Blurr Vision				1		1	2
Hearing Problem	1						1
Abraison & Nose Bleed	1						1
Abraison & Sprain	1						1
Open Wound & Teeth Loosened	2			1			3
Abraison & Teeth Loosened	1						1
Bone Bruise & Sprain		1					1
Abraison & Fracture	1						1
TOTALS	127	9	1	49	18	9	213

TABLE IV

FREQUENCY OF INJURY FOR SPECIFIC ACTIVITIES AS RELATED TO PROGRAM PHASE FOR GRADES K to 6

PROGRAM PHASE	Activity: Free Play noon or recess	Organized Activity noon or recess	Dance lessons	Games lessons	Gymnastic lesson	Free Play before of after school	TOTALS
Physical Education Instruction			1	49	18		68
Intramural, House League or club		9					9
Interscholastic Activity							-
Recess	75						75
Free Activity before or after school, noon hour play	56					11	67
TOTALS	131	9	1	49	18	11	219

NOTE: - gives breakdown for incidence for

(1) recess = 75
(2) noon = 56
(3) before or after school = 11

TABLE V

FREQUENCY OF THE TYPE OF INJURY AS
RELATED TO PROGRAM PHASE
FOR GRADES K - 6

TYPE OF INJURY	Program Phase: Physical Education Instruction	Intramural	Recess	Free Play Before or after school, noon hour	TOTALS
Abrasion	2		7	2	11
Open Wound	11		16	18	45
Pinched Nerve					-
Bone Bruise	15	1	8	11	35
Muscle Bruise	2		2	2	6
Muscle Strain	1				1
Sprain	16	3	10	5	34
Dislocation/Separation					-
Fracture	6	3	14	5	28
Concussion	3		5	4	12
Nose Bleed	1			3	4
Teeth Loosened/Broken	8	1	10	9	28
Open Wound & Teeth Loosened	1		1	1	3
Bone Bruise & Sprain		1			1
Hearing Problem			1		1
Abrasion & Nose Bleed			1		1
Fracture & Abrasion			1		1
Abrasion & Sprain				1	1
Abrasion & Teeth Loosened				1	1
Temp. Blurring Vision	1			1	2
TOTALS	67	9	76	63	215

TABLE VI

FREQUENCY OF THE TYPE OF INJURY AS RELATED TO BODY REGIONS FOR GRADES K-6

BODY REGION	TYPE OF INJURY																		
	Concussion	Open Wound	Bone Bruise	Muscle Bruise	Sprain	Bone Bruise & Sprain	Abrasion & Sprain	Fracture	Fracture & Abrasion	Abrasion	Abrasion & Teeth loosened or broken	Teeth loosened or broken	Open wound & Teeth loosened or broken	Nose Bleed	Nose Bleed & Abrasion	Muscle Strain	Hearing Problem	Blurring of Vision	TOTALS
ead, not face	12	19	11							4							1		47
ace not nose, teeth		18	7							1									26
yes																			
ose		1												4	1				6
eeth												28							28
ye		1								3								2	6
houlder			1	1	1			2											5
ollarbone			1					1											2
pper Arm		1						2											3
lbow			4		1														5
orearm		1	1	1				4								1			8
rist					8			7											15
nger		1	3		4			4											12
humb			1		1			2											4
domen				1															1
ck			1	1	1											1			4
oin				1															1
igh				1															1
ee		2	2		4		1												9
wer Leg			1					5		1									7
kle		1			10														11
ot		2	1		3			2											8
ce & Teeth											1		2						3
ee & Lower Leg						1													1
rearm & Thigh									1										1
ist & hand			1																1
ist & Upper Arm										1									1
e, Lip & Teeth													2						2
TALS	12	47	35	6	33	1	1	29	1	10	1	28	4	4	1	2	1	2	218

TABLE VII

FREQUENCY OF INJURY FOR SPECIFIC ACTIVITIES

AS RELATED TO BODY REGION

FOR GRADES K to 6

BODY REGION	Activity: Free Play Noon or Recess	Organized Act. Noon or Recess	Dance Lessons	Games Lessons	Gymnastics Lessons	Free Play — Before or After	TOTALS
Head, not face	32			14	2		48
Face, not nose	18	1		2	1	3	25
Nose	1		1	1		2	5
Teeth	17	1		7	1	2	28
Eye	4			2		1	7
Shoulder	3	1			1		5
Collarbone	1			1			2
Upper Arm	3						3
Elbow	3			1	1		5
Forearm	4			3	1		8
Wrist	8	1		3	3		15
Finger	6	1		3	2		12
Thumb	2	1				1	4
Abdomen	1						1
Back	1			1	2		4
Groin	1						1
Thigh					1		1
Knee	8			1			9
Lower Leg	3	1		2		1	7
Ankle	4			5	2		11
Foot	4	1		1	2		8
Face & Teeth	3						3
Knee & Lower Leg		1					1
Forearm & Thigh	1						1
Wrist & Hand				1			1
Wrist & Upper Arm	1						1
Face, Lip & Teeth	1			1			2
TOTALS	130	9	1	49	19	10	218

TABLE VIII

FEQUENCY OF INJURY FOR SPECIFIC ACTIVITIES
AS RELATED TO THE TIME OF DAY

FOR GRADES K - 6

	TIME OF DAY									
ACTIVITY	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	TOTAL
Free Play Noon or Recess	3	1	38	2	43	9	33	3	1	133
Organized Activity Noon or Recess	1		2		4		1		1	9
Dance Lessons								1		1
Games Lessons	1	6	4	10		5	13	10		49
Gymnastics Lessons		2	1	2	2	1	9	1		18
Free Play Before or After School	6								3	9
TOTALS	11	9	45	14	49	15	56	15	5	219

TABLE IX

FEQUENCY OF INJURY IN SPECIFIC ACTIVITIES
AS RELATED TO FACILITIY AREA
FOR GRADES K to 6

ACTIVITY	Facility Area							
	Gym	Playing Field or Tarmac	Swimming Pool	Permanent Play Equipment	Ice Rink	Ski Hill	Off School Property	TOTALS
Free Play - noon or recess	6	95		22	1	1	2	127
Organized Activity Noon or Recess	5	4						9
Dance Lessons	1							1
Games Lessons	35	7			5		2	49
Gymnastics Lessons	16	1	1					18
Free Play before and After School	1	6	1	2			1	11
TOTALS	64	113	2	24	6	1	5	215

APPENDIX E

TABLES USED FOR COMPILING HISTOGRAM FIGURES FOR THE SEVENTH TO TWELFTH GRADE POPULATIONS

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TABLE X

FREQUENCY OF INJURY FOR SPECIFIC ACTIVITES
AS RELATED TO AGE FOR GRADES 7-12

Activity	Ten and Younger	Eleven	Twelve	Thirteen	Fourteen	Fifteen	Sixteen	Seventeen	Eighteen	Ninteen and Older	Totals
Basketball	-	-	3	7	17	11	9	10	3	-	60
Bordenball	-	1	-	-	-	-	-	-	-	-	1
Canoeing & Rowing	-	-	-	1	-	-	-	-	-	-	1
Field Hockey	-	-	-	2	-	-	1	1	-	-	4
Floor Hockey	1	-	1	3	4	2	1	1	1	-	14
Tackle Football	-	-	2	-	1	9	6	7	2	-	27
Touch Football	-	2	4	11	8	4	3	-	1	-	33
Gymnastic Apparatus	-	1	4	6	4	8	1	1	-	-	25
Olympic Handball	-	-	1	-	3	7	1	-	-	-	12
Broomball	-	-	1	-	2	-	-	-	1	-	4
Racquet Games	-	-	-	-	3	-	1	-	-	-	4
Soccer-Speedball	-	1	5	5	2	4	1	1	1	-	20
Softball-Baseball	-	-	1	3	3	3	1	2	-	1	14
Track & Field	-	1	4	6	10	5	1	3	1	-	31
Volleyball	-	-	2	5	8	8	3	2	-	-	28
Wrestling-Self-Defense	-	1	2	-	2	10	1	1	-	-	17
Miscellaneous Indoor Activity	-	1	1	6	5	1	1	1	-	-	16
Aquatics	-	-	-	1	-	1	-	2	-	-	4
Warm-ups	-	-	1	1	-	2	-	-	-	-	4
Gymnastic Tumbling	-	-	1	3	4	6	1	1	-	-	16
Hunter Training	-	-	-	-	1	-	-	-	-	-	1
Ice Hockey	-	1	1	2	-	-	-	-	-	-	4
Other Ice Sports	-	-	1	-	-	-	-	1	-	-	2
Downhill Skiing	-	1	2	-	-	-	1	2	1	-	7
Miscellaneous Outdoor Activity	1	1	3	3	-	-	2	-	-	-	10
Horseback Riding	-	-	-	2	-	-	-	-	-	-	2
Rugby	-	-	-	-	-	6	4	3	-	-	13
Totals	2	11	40	67	77	87	39	39	11	1	374

TABLE XI

FREQUENCY OF INJURY FOR SPECIFIC ACTIVITES AS RELATED TO GRADE FOR GRADES 7-12

	Seven	Eight	Nine	Ten	Eleven	Twelve	Totals
Basketball	6	11	13	11	11	9	61
Bordenball	1	-	-	-	-	-	1
Canoeing & Rowing	-	1	-	-	-	-	1
Field Hockey	-	2	-	-	1	1	4
Floor Hockey	1	5	3	4	-	1	14
Tackle Football	2	-	-	9	6	10	27
Touch Football	8	7	13	2	2	1	33
Gymnastic-Apparatus	6	5	4	10	-	-	25
Olympic Handball	-	-	5	6	-	-	11
Broomball	1	1	1	-	-	1	4
Racquet GAmes	-	-	3	-	1	-	4
Soccer-Speedball	5	8	4	-	1	2	20
Softball-Baseball	3	1	7	-	1	1	13
Track & Field	8	11	7	2	2	1	31
Volleyball	2	1	14	6	4	1	28
Wrestling-Self-Defense	3	-	2	9	1	1	16
Miscellaneous Indoor Activities	2	9	2	2	-	1	16
Aquatics	-	1	-	1	1	-	3
Warm-ups	1	1	1	1	-	-	4
Gymnastic Tumbling	3	2	8	3	1	1	18
Hunter Training	-	-	1	-	-	-	1
Ice Hockey	1	3	-	-	-	-	4
Other Ice Sports	1	-	-	-			2
Downhill Skiing	2	-	-	-	1	3	6
Miscellaneous Outdoor Activities	3	3	-	2	-	-	8
Horseback Riding	-	2	-	-	-	-	2
Rugby	-	-	-	8	3	2	13
Totals	59	74	88	76	37	36	371

TABLE XII
FREQUENCY OF INJURY IN SPECIFIC ACTIVITIES AS RELATED TO THE TIME OF DAY FOR GRADES 7 to 12

	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	Aft.6	TOTAL
Aquatics		1	1			2						4
Horseback Riding			1		1							2
Basketball	1	6	6	7	13	7	6	2	2	2	9	61
Bordenball		1										1
Canoeing or Rowing							1					1
Field Hockey		2	1		1							4
Floor Hockey		1	4	2	4	2	1	1				15
Tackle Football			1	1					14	9	2	27
Touch Football		2	3	5	14	4	4			1		33
Warm-up			1	1		1		1				4
Gym (Apparatus)	2	3	2	5		4	6	1	2			25
Gym (Free Exer. & Tumbling)		3	5	5		1		2	2			18
Olympic Handball		3	2	5				2				12
Broomball		1				1	2					4
Hunter Training									1			1
Ice Hockey						1			3			4
Ice Sports		2										2
Racquet Games			1			1	1	1				4
Downhill Skiing			1		3		2	1				7
Rugby		1	2	3		1	1	3		2		13
Soccer or Speedball	1		6	3	5	2	4					21
Softball-Baseball	1		3	1	4	2	2		1			14
Track & Field	1	2	5	2	6	2	8	3		1	1	31
Volleyball	2	6	6	3	4	2	1	4			1	29
Wrestling-Self Defence	2	3		3	2	3	1	2	1			17
Misc. & Indoor Act.	1	4	1	2	2	2	1	3				16
Misc. Outdoor Activities	1		2	1	4	2						10
	12	41	54	49	63	40	41	26	26	15	13	380

TABLE XIII
FREQUENCY OF INJURY FOR SPECIFIC ACTIVITIES
AS RELATED TO SEX FOR GRADES 7 to 12

	M	%	F	%	TOTAL
Aquatics	2	50	2	50	4
Horseback Riding			2	100	2
Basketball	31	51	30	49	61
Bordenball	1	100			1
Canoeing/Rowing			1	100	1
Field Hockey	1	25	3	75	4
Floor Hockey	13	87	2	13	15
Tackle Football	26	96	1	4	27
Touch Football	25	76	8	24	33
Warm-up			4	100	4
Gymnastic Apparatus	16	64	9	36	25
Gymnastic Tumbling	5	28	13	72	18
Olympic Handball	11	92	1	8	12
Broomball	1	25	3	75	4
Hunter Training			1	100	1
Ice Hockey	4	100			4
Other Ice Sports			2	100	2
Racquet Games			4	100	4
Downhill Skiing	4	57	3	43	7
Rugby	13	100			13
Soccer/Speedball	12	57	9	43	21
Softball/Baseball	9	64	5	36	14
Track & Field	17	55	14	45	31
Volleyball	15	52	14	48	29
Wrestling/Self Defense	16	94	1	6	17
Misc. Indoor Act.	12	75	4	25	16
Misc. Outdoor Act.	7	70	3	30	10
TOTAL	241	63	139	37	380

TABLE XXV

Frequency of Injury for Specific Activities
as Related to Body Region for Grades 7 to 12

Second only Activity
X
Body Region Injured

	Head not face	Face not teeth or eyes	Nose	Teeth	Eye	Neck	Shoulder	Collarbone	Upper Arm	Elbow	Forearm	Wrist	Hand	Finger	Thumb	Chest	Abdomen	Back	Buttocks	Hip	Groin	Thigh	Knee	Lower Leg	Ankle	Foot	Toe	Face & Teeth	Knee & Ankle	Hand & Finger	Knee & Lwr Leg	Abdomen & Hip	Thigh & Hip	Head & Ankle	Neck & Back	Wrist & Uppr. Arm	Back & Chest	Forearm, Wrist & Thumb	Back & Buttock	Back, Neck & Shoulder	Hand & Thumb	Totals
Aquatics	2					1																				1															4
Horseback Riding																						2																				2
Basketball	6	5	1	2	3	1					1	3	1	9	2								5		19	1							1								61
Bordenball														1																												1
Canoeing or Rowing		1																																								1
Curling																																									
Dance																																									
Field Hockey		2													1									1																		4
Floor Hockey		4		2			1	1		1				1	2						1		1		1																	15
Tackle Football	2			1			3			1	1	1		1	2	2		1			1		3		5	2							1									27
Touch Football	2	3		4			1	3				4		3	1				1			1	5		3	1						1										33
Warm-up																							1		2																	3
Gymnastic Apparatus	2		1			2				1		2	2	2	1	1	1	1					3		5		1															25
Gymnastic Tumbling	1		1			3		1		1		2						5							2	1			1													18
Olympic Handball		1									1	1	1	2	1			1		1		1	1							1											12
Broomball																						1			2	1															4
Hunter Training																									1																	1
Ice Hockey	1						1	1				1																														4
Other Ice Sports										1													1																			2
Racquet Sports		1		1																					2																	4
Downhill Skiing				1																			2	3	1																	7
Rugby	2						1	3				1		2	2								1		1																	13
Soccer & Speedball		1	1		2									1	3		1	1					4	1	2	4																21
Softball & Baseball		1		2	1			1				1			2									2	3			1														14
Track & Field	3	1	1	1			1				1			2	1			2	1	1		2	4		6	1				1						1			1			31
Volleyball	1	1			1				1			1	2	5	2			2		1			2	1	6	1						1						1				29
Wrestling, Self Defence	1	2		1				3		3		3		1		1																										15
Misc. Indoor Act		2		2		1				1		1	1	4											1																	13
Misc. Outdoor Act	2	1						1			1	1								1					2																	9
	24	26	5	17	7	8	8	14	1	9	5	22	7	34	20	4	2	13	2	4	2	7	33	8	64	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	273

TABLE XV

FREQUENCY OF INJURY FOR SPECIFIC ACTIVITIES AS RELATED TO TYPE OF INJURY FOR GRADES 7 to 12

	Abrasion, Bone Br and Sprain	Abrasion	Abrasion and Bone Break	Open Wound & Teeth	Open Wound	Pinched	Bone Br.	Muscle Br.	Muscle St.	Sprain	Dis & Sep.	Fracture	Concussion	Nose Bleed	Teeth	Vison Temp Blur	Muscle Br Bone Br.	Bone Br & Sprain	Sprain & Concussion	Mus Br. & Muscle St.	Fracture & Nose Bleed	Bone Bruise & Concussion	Bone Br. Muscle Br. & Spr.	Muscle Str & Spr.	Facture Str & Muscle Sprain		Total
Basketball		2			5		3		1	32	1	7	2	1	2	1		1	1	1		1					61
Bordenball												1															1
Canoeing and Rowing					1																						1
Field Hockey					2		1					1															4
Floor Hockey					4		2	1		3	1	2			2												15
Touch Football					5		2	3		8	3	6	1		4		1										33
Warm-ups							1			2		1															4
Gym Apparatus			1		5		1	1	2	9	3	3															25
Gym Tumbling							1		7	4		4						1			1						18
Olympic Hand							1	1	2	3	1	3															12
Broom Ball							1	2		1														1			4
Hunter Training											1																1
Ice Hockey												3	1														4
Other Ice Sports							1		1																		2
Racquet Games							1			1		1			1												4
Downhill Skiing										3		3			1												7
Rugby										3	3	5	2			1											13
Soccer and Speed Ball					2	1	2	2	1	7	2	3															21
Softball & Baseball				1	2		1			3	1	4			2												14
Track & Field	1				8		4	2	2	5	2	3	2		1		1										31
Volleyball		1			3		4		4	9	2	4					1						1				29
Wrestling & Pers. Def.					1		4	1		3	1	5	1		1												17
Misc Indoor Activities							3	1	1	4		5			2												16
Misc Outdoor Activities					4		1			1		3	1														10
Tackle Football							4	1	2	6	4	5	2		1									1	1		27
Total	1	3	1	1	42	1	38	15	23	107	25	72	12	1	17	2	3	2	1	1	1	1	1	2	1		374

TABLE XVI
FREQUENCY OF INJURY IN SPECIFIC ACTIVITIES AS RELATED TO FACILITY AREA FOR GRADES 7 to 12

ACTIVITIES	Gym	Playing Field	Swimming Pool	Ice Rink	Ski Hill	Off School Property	Permanent Play Equipment	TOTAL
Basketball	60	1						61
Borden Ball	1							1
Field Hockey	2	2						
Warm-ups	4							4
Gym Appar.	24					1		25
Gym Tumbling	18							18
Olympic Handball	10	2						12
Racquet Games	4							4
Soccer & Speedball	2	19						21
Softball & Baseball	1	13						14
Track & Field	7	21				1		29
Volleyball	28					1		29
Wresling & Self Defense	17							17
Misc. Indoor Act.	16							16
Misc. Outdoor Act.	2	4				2	1	9
Horseback Riding		1				1		2
Tackle Football		27						27
Touch Football		33						33
Broomball		2		1		1		4
Rugby		13						13
Aquatics			2			2		4
Ice Hockey				4				4
Other Ice Sports				2				2
Downhill Skiing					7			7
Canoeing and Rowing						1	1	2
Hunter Training						1		1
Floor Hockey	15							15
TOTAL	211	138	2	7	7	11	2	378

TABLE XVII

FREQUENCY OF INJURY FOR SPECIFIC ACTIVITIES AS RELATED TO PROGRAM PHASE FOR GRADES 7-12

	Physical Ed. Instruction	Intramural	Interscholastics	Recess	Free Act. Before/ After School	TOTAL
Acquatics	4					4
Horseback Riding	1			1		2
Basketball	29	8	16	1	7	61
Bordenball	1					1
Canoeing/Rowing						-
Curling						-
Dance						-
Field Hockey	3	1				4
Floor Hockey	11	3			1	15
Tackle Football	1	1	24	1		27
Touch Football	18	5	2	2	6	33
Warm-up	4					4
Gymnastic Apparatus	20	1	3		1	25
Gymnastic Tumbling	16		2			18
Olympic Handball	11		1			12
Broomball	4					4
Hunter Training	1					1
Ice Hockey	1		3			4
Other Ice Sports	1					1
Racquet Games	4					4
Downhill Skiing	6	1				7
Rugby	8		5			13
Soccer/Speedball	12	3	1	1	3	20
Softball/Baseball	6	4	1		3	14
Frack & Field	22		6		3	31
Volleyball	18	4	3		3	28
Wrestling/Self Defense	13	1	3			17
Misc. Indoor Act.	12			1	3	16
Misc. Outdoor Act.	2			2	6	10
TOTAL	229	32	70	9	36	376

TABLE XVIII

PROBABLE DIRECT CAUSE OF INJURY

AS RELATED TO THE FREQUENCY

OF INJURIES IN SPECIFIC ACTIVITIES FOR GRADES 7 to 12

	Blow by Object	Fall or Trip - no reason	Fall-Gym Equip	Accidental Collision	Body Contact-Normal	Strain-Overexertion	Carelessness X Pupil	No Clear Reason	Contact with Self	Contact with Water	Obstruction Playing Area	TOTAL
Basketball	12	12		18	7	3	2	4			1	59
Bordenball	1											1
Canoeing & Rowing	1											1
Field Hockey	3			1								4
Floor Hockey	10	1			3	1						15
Tackle Football	4	3		1	17	1		1				27
Touch Football	3	6		12	8		2					31
Gymnast-Apparatus	2		17		1		2	3				25
Olympic Handball	4	3		1	2			2				12
Broomball	1			2				1				4
Racquet Games	2	2										4
Soccer-Speedball	4	4		7	1	2	2	1				21
Softball-baseball	7	3		2	2							14
Track & Field	5	11	4			2	2	3	3			30
Volleyball	11	7		4		4	1					28
Wrestling Self-Defense	1	1		2	10	3						17
Misc. Indoor Act.	5	4		5		1	1					16
Acquatics		1				1		1		1		4
Warm-Ups		3				1						4
Gymnast Tumble		3	5		1	7	1	1				18
Hunter Training		1										1
Ice Hockey		1			3							4
Other Ice Sports		2										2
Downhill Skiing		6						1				7
Misc. Outdoor Act.		3		4			3					10
Horseback Riding				1				1				2
Rugby				1	9	1		2				13
TOTALS	76	77	26	61	64	27	16	22	3	1	1	374

TABLE XIX

FREQUENCY OF INJURY BY GRADE AS RELATED TO PROGRAM PHASE FOR GRADES 7-12

Grade	Physical Ed. Instruction	Intramural Activity	Interscholastic Activity	Recess	Free Activity, Before or After School or Noon Hour Play.	Totals
Seven	35	7	7	1	8	58
Eight	49	4	7	4	10	74
Nine	53	10	12	2	12	89
Ten	59	3	11	-	3	76
Eleven	17	2	17	-	1	37
Twelve	12	5	16	-	3	36
Totals	225	31	70	7	37	370

TABLE XX

FREQUENCY OF TYPE OF INJURY AS RELATED TO BODY REGIONS FOR GRADES 7 to 12

	Fracture	Open Wound	Bone Bruise	Concussion	Bone Br. Muscle Br. & Sprain	Open Wound & Loosened Teeth	Nose Bleed	Muscle Br.	Muscle Br. & Muscle Strain	Sprain	Strain	Hearing Problem	Bone Bruise & Concussion	Abrasion	Abrasion & Bone Bruise	Fracture & Nose Bleed	Teeth - Loosened or Broken	Temp. Blur Vision	Dislocate-Separation	Muscle Cramp	Bone Br. & Sprain	Pinched Nerve	Fracture & Sprain	Sprain & Strain	Bone Br. & Muscle Br.	Concussion & Sprain	Bone Br. Sprain & Abrasion	TOTAL
Head, not face		6	4	12								1	1															24
Face, not nose		19	5					2						1														27
Nose	3						1									1												5
Teeth																	17											17
Eye		2												2				2										6
Neck										2	7																	9
Shoulder	1									2								5										8
Collarbone	14																											14
Upper Arm											1																	1
Elbow	2		3							2								2										9
ForeArm	2	1	1								1																	5
Wrist	12		2							8																		22
Hand	1	3	2							1																		7
Finger	10	4	4							15								3										36
Thumb	7									6								7										20
Chest			3															1										4
Abdomen								2																				2
Back			3					1			13																	17
Buttocks		1						1																				2
Hip			1					1			1							1										4
Groin								1			1																	2
Thigh		1						3			2								1									7
Knee	1	5	8							14								4		1		1						13
Lower Leg	5	1	1																		1							8
Ankle	6	1	2							52								2					1					64
Foot	7							3		3																		13
Toe														1														1
Face & Teeth					1																							1
Knee & Ankle																				1								1
Knee Lower Leg																							1					1
Hand & Finger																								1				1
Abdomen & Hip																									1			1
Thigh & Hip																									1			1
Head & Ankle																									1			1
Neck & Back																										1		1
Wrist & Upper Arm																								1				1
Back & Chest								1																			1	1
Back & Buttocks								1																				1
Hand & Thumb	1																											1
Face, Arm, Wrist & Thumb				1																								1
Back, Neck & Shoulder								1																				1
TOTAL	72	44	39	12	1	1	1	16	1	105	26	1	1	3	1	1	17	2	25	1	2	1	1	2	3	1	1	381

TABLE XXI

FREQUENCY OF INJURY BY GRADE AS RELATED TO TYPE OF INJURY FOR GRADES 7-12

	Seven	Eight	Nine	Ten	Eleven	Twelve	Totals
Abraison	-	-	-	1	1	1	3
Open Wound	9	11	11	5	2	4	42
Pinched Nerve	1	-	-	-	-	-	1
Bone Bruise	5	7	12	4	2	5	35
Muscle Bruise	4	7	2	1	2	-	16
Muscle Strain	3	2	10	6	2	1	24
Sprain	14	20	23	28	8	12	105
Dislocation/Separation	3	6	4	6	3	3	25
Fracture	13	15	17	16	8	2	71
Concussion	1	1	-	5	2	3	12
Nose Bleed	1	-	-	-	-	-	1
Teeth-Loosened or Broken	2	3	4	2	2	3	16
Hearing Problem	-	-	-	1	-	-	1
Temporary Blurring Vision	1	1	-	-	-	-	2
Muscle Cramp	-	1	-	-	-	-	1
Open Wound plus Teeth Loosened or Broken	1	-	-	-	-	-	1
Other Multiple Injuries	1	-	6	1	5	2	15
Totals	59	74	89	76	37	36	371

TABLE XXII

FREQUENCY OF TYPE OF INJURY AS RELATED TO PROGRAM PHASE, FOR GRADES 7 to 12

	Physical Ed. Instruction	Intramural	Interscholastics	Recess	Free Act. Before/ After School	TOTALS
Abrasion / Scrape	1		2			3
Open Wound	23	6	6	3	4	42
Pinched Nerve	1					1
Bone Bruise	23	2	6	1	5	37
Muscle Bruise	12	1	2		1	16
Muscle Strain	17	2	3		1	23
Sprain	76	9	15	1	5	106
Dislocation/Separation	12	2	7		4	25
Fracture	39	6	15	1	12	73
Concussion	5	1	6			12
Nose Bleed	1					1
Teeth/loosened or broken	10	3	1	2	1	17
Hearing Problem	1					1
Temporary Blur Vision	1		1			2
Muscle Cramp				1		1
Open Wound & Teeth	1					1
Bone Br. & Sprain	1		1			2
Bone Br. & Muscle Br.	1				1	2
Abrasion & Bone Br.	1					1
Fracture & Nose Bleed	1					1
Bone Br. Muscle Br., Sprain	1					1
Abrasion, Bone Br. Sprain	1					1
Muscle Strain & Sprain			2			2
Sprain & Concussion			1			1
Fracture, Sprain, Muscle Strain			1			1
Bone Br. & Concussion			1			1
Muscle Br. & Musc. Strain					1	1
TOTALS	229	32	70	9	35	375

TABLE XXIII

FREQUENCY OF INJURY BY SEX AS RELATED TO TYPE OF INJURY FOR GRADES 7-12

Type of Injury	Male	Female	Total
Abraison	1	2	3
Open Wound	34	10	44
Pinched Nerve	-	1	1
Bone Bruise	22	12	34
Muscle Strain	8	16	24
Sprain	60	47	107
Dislocation/Separation	19	6	25
Fracture	48	25	73
Concussion	10	2	12
Nose Bleed	-	1	1
Teeth-Loosened or Broken	13	4	17
Hearing Problem	1	-	1
Temporary Blurring Vision	13	4	17
Muscle Cramp	-	1	1
Open Wound plus Teeth Loosened or Broken	1	-	1
Other Multiple Injuries	9	6	15
Totals	239	137	376

APPENDIX F

LIST OF SCHOOLS SURVEYED

School	Grades	Grades Selected	Population Male	Female
Grovedale Penson Elem.	(1-6)	5	46	43
St. Josephs R.C.S. Grande Prairie	(7-12)	7 & 8	172	192
Centre St. Elem. - Peace River	(1-6)	6	156	142
High Prairie Elem.	(K-3)	-	95	80
Jean Cote School	(K-6)	4	25	22
Roland Michener High - Slave Lake	(9-12)	10	143	143
Mistassiniy School - Desmarais	(1-10)	7 & 9	138	135
J.P. Dion School - Sputinow	(K-7)	7	43	26
Cherhill School	(1-6)	4	31	36
Onoway H.S.	(7-12)	7 & 8	312	295
Drayton Valley Elem. B.	(5-6)	6	138	120
Stony Plain Elem.	(1-7)	4	284	246
Vimy School	(1-9)	9		
Morinville Colony School	(1-9)	9	5	8
Legal School	(1-12)	10	221	200
Thorhild Elem. &r. High	(K-8)	8	180	138
Vera M. Welsh Elem. - Lac La Biche	(3-6)	6	286	310
Spedden School	(K-6)	5	22	30
Cold Lake P.S.	(1-9)	7	112	86
Grande Centre J.H.	(6-9)	9	198	146
Bonnyville Centralized High	(10-12)	10	223	227
Beaver River School - Medley	(K-6)	4	155	117
Millet School	(1-9)	7	114	117
Rosebrier - Wetaskiwin	(1-9)	8	30	37
Parkdale School Elem. Wetaskiwin	(1-6)	5	171	172
Colchester School - S. Edmonton	(K-6)	6	140	147
Fort Saskatchewan - J.H.	(7-9)	9	232	211

School	Grades	Grades Selected	Population Male	Population Female
Ministik School - Sherwood Park	(K-5)	5	33	45
Campbelltown School - Sherwood Park	(1-6)	6	173	167
Mannville School	(1-12)	8	187	195
Derwent School	(1-11)	9 & 6	109	92
New Hairy Hill School	(1-8)	8	48	54
New Myrnam School	(1-12)	10	170	153
Two Hills H.S.	(7-12)	7	152	150
Two Hills Elem.	(1-6)	4	117	114
Marwayne Jubilee	(1-12)	5	127	136
Woodvale School - Vermillion	(1-4)	4	6	5
Blessed Sacrament School - Wainright	(1-9)	7	137	115
Ponoka J.H.	(7-9)	7	269	209
Riverside Elem. - Ponoka	(K-6)	6	61	68
Clive School	(K-9)	5	84	79
James. S. McCormick Elem. - Lacombe	(1-6)	6	322	289
Central Elem. - Red Deer	(1-6)	5	108	105
Eastview J.H. - Red Deer	(709)	9	299	327
Oriole Park School - Red Deer	(1-6)	5	166	169
West Park Elem. - Red Deer	(1-6)	5	195	166
St, Martin De Porres School - Red Deer	(1-6)	6	58	62
St. Thomas Aquinas School - Red Deer	(4-9)	9	307	287
Donalda School	(1-9)	9	65	49
Waverly School - Stettler	(1-9)	7	92	96
Star Ridge School - Stettler	(1-8)	4	15	21
Heisler School	(1-9)	4	76	88
Metiskow School	(1-8)	5	24	26
Olds Elem.	(1-6)	4	321	290

School	Grades	Grades Selected	Population Male	Female
Edwards Elem. - Airdrie	(1-4)	4	145	125
Andrew Sibbald Elem. Cochrane	(1-5)	5	214	215
Exshaw School	(1-9)	9	116	99
Blackie School	(K-9)	9 & 7	115	111
Percy Peglar Elem. - Okotoks	(1-6)	6	284	289
Senator Riley High - High River	(7-12)	10	253	269
Cayley Colony School	(1-7)	5	10	7
Dr. Elliott School - Linden	(1-12)	10	148	165
Three Hills School	(1-12)	10		
Morrin School	(1-12)	10	102	117
West Raley Colony - Cardston	(1-9)	8 & 6	11	6
F.P. Walshe - Fort McLeod	(7-12)	10	291	257
J.T. Foster - Nanton	(4-12)	9	165	156
Parkland Hutterite Colony	(1-8)	4	19	8
Coalhurst H.S.	(7-12)	8	88	79
Hardieville School - Lethbridge	(K-6)	5	26	44
Readymade School - Coaldale	(1-6)	4	34	43
Agnes Davidson School - Lethbridge	(1-6)	6	23	35
Erle Rivers H. - Milk River	(7-12)	10	105	119
Milk River Elem.	(1-6)	6	63	68
Enchant School	(K-9)	7	50	37
L.T. Westlake School - Taber	(1-6)	5	67	85
East Rolling Hills School	(1-9)	9	78	65
Tilley School	(1-12)	6	112	132
Brooks Elem.	(4-6)	6	154	158
Brooks Primary	(1-3)		156	142
Lebanon School - Irvine	(1-8)	8	2	8

School	Grades	Grades Selected	Population Male	Population Female
Alexandra J.H. - Medicine Hat	(8-9)	9	289	265
Rivers Heights School - Medicine Hat	(1-7)	6	143	159
Bow Island Elem.	(1-6)	4	74	86
Foremost School	(1-12)	8	193	172
Queen Elizabeth H. - Edmonton	(10-12)	10	817	852
Braemar School Elem. - Edmonton	(K-6)	6	239	232
Calder School Elem. - Edmonton	(K-6)	5	156	145
Cromdale School Elem. - Edmonton	(K-6)	6	55	31
Glenora Schoool Elem. - Edmonton	(K-6)	4	99	108
Queen Alexandra School - Edmonton	(K-6)	6	93	90
Queen Mary Park School - Edmonton	(1-6)	5	105	67
Woodcraft Elem. - Edmonton	(K-6)	5	51	66
Delwood Elem. - Edmonton	(K-6)	6	275	282
Westbrook Elem - Edmonton	(1-6)	6	205	194
Brightview Elem. Edmonton	(1-6)	6	174	155
King Edward Elem. - Edmonton	(K-9)	7	278	210
Lawton School J.H. - Edmonton	(7-9)	8	351	353
Londonderry School J.H. - Edmonton	(7-9)	8	301	310
St. Bride School Elem. - Edmonton	(K-6)	5	64	64
St. William Primary - Edmonton	(1-3)		25	22
St. Justin School Elem. - Edmonton	)K-5)	4	92	92
St. Puis X. J.H. - Edmonton	(K-9)	4	181	175
St. Francis Xavier H. - Edmonton	(10-12)	10	498	495
Holy Name - Calgary	(K-6)	4	92	105
St. Andrew Elem. - Calgary	(K-5)	4	111	83
St. Gerard Elem. - Calgary	(K-6)	6	141	97

School	Grades	Grades Selected	Population Male	Population Female
St. Leo Elem. - Calgary	(K-6)	4	117	115
St. Bonaventure J.H. - Calgary	(7-9)	8	139	112
Westgate - Calgary	(1-6)	6	148	135
Highwood - Calgary	(1-6)	5	80	94
Rosemont - Calgary	(1-6)	5	38	54
Stanley Jones - Calgary	(1-6)	6	138	132
Marion Carson - Calgary	(1-6)	5	336	300
Acadia - Calgary	(1-6)	4	259	221
Eugene Coste - Calgary	(1-6)	4	264	272
Maple Ridge - Calgary	(1-6)	4	192	185
Mountain View - Calgary	(1-6)	5	209	220
Balmoral - Calgary	(1-9)	7	201	235
Bob Edwards - Calgary	(6-9)	8	284	295
Dr. Oakley - Calgary	(1-9)	9	203	176
Parkdale - Calgary	(1-9)	7	219	221
Mount Royal - Calgary	(7-9)	8	109	121
Henry Wise Wood H. - Calgary	(10-12)	10	735	751
Lord Beaverbrook H. - Calgary	(10-12)	10	1,114	982
John Diefenbacker - Calgary	(10-12)	10	501	511